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Western Mining in the Twentieth Century Oral History Series

Langan W. Swent

WORKING FOR SAFETY AND HEALTH IN UNDERGROUND MINES; SAN LUIS AND HOMESTAKE MINING COMPANIES, 1946-1988

In Two Volumes

Includes interviews with Eleanor H. Swent

With Introductions by
Richard Stoehr and Laura Madsen

Interviews Conducted by
Malca Chall
in 1987-1988, 1994

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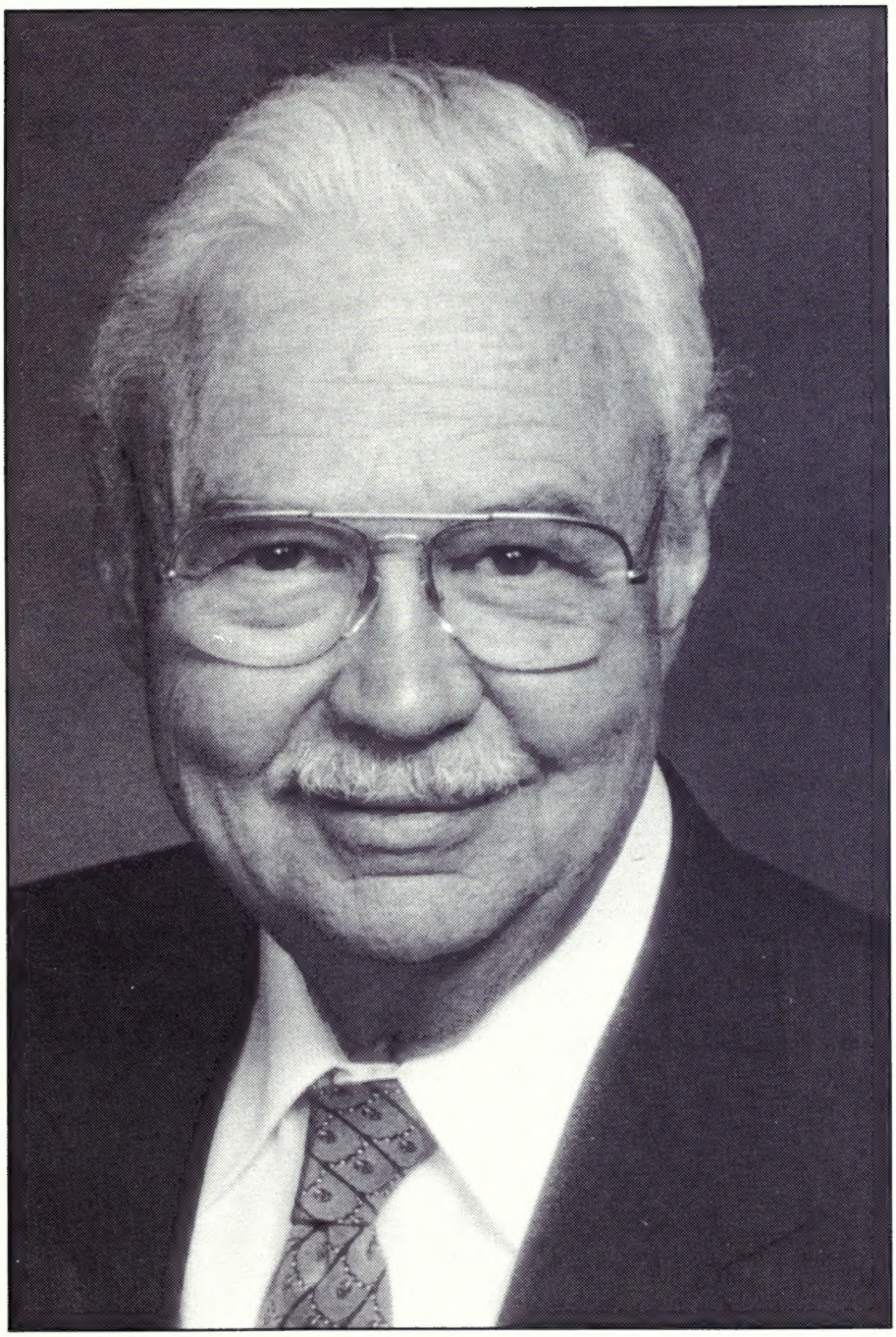

Langan W. Swent, 1987

VOLUME TWO

Cataloging information

SWENT, Langan W. (1916-1992) Mining engineer; executive

Working for Safety and Health in Underground Mines; San Luis and Homestake Mining Companies, 1946-1988, two volumes, 1995, xix, 1007 pp.

Family and youth in Tayoltita, Mexico; education at Moses Brown School, Providence, R.I., Stanford, UC Berkeley Graduate School of Mines, Harvard; US Navy Landing Craft Tanks in Africa, Italy, France, 1941-1945; mining career: gold, in Lead, South Dakota, 1946-1947, 1954-1957; silver, in Tayoltita, Mexico, 1947-1954; uranium, in Grants, New Mexico, 1957-1966; Homestake Mining Co. corporate headquarters, San Francisco, 1966-1983: ventures in California, Missouri, Michigan, Australia, Peru; research and analysis regarding radiation exposure and cancer among miners, radon daughters; relationships with federal agencies dealing with environmental problems created by mining, and health and safety standards in mines; review of Homestake presidents, 1914-1988, and changes in corporate culture and management practices; comprehensive discussion of mining technologies: drilling, tunneling, sinking shafts, ventilation; union and non-union labor relations, management and personnel policies, politics and community relations, research on radiation; thoughts on family, and foreign and domestic travel. Includes an interview with Eleanor Swent on youth in Lead, Wellesley College years, marriage to Langan Swent, and experiences raising children and participating in community life in Tayoltita, Lead, Grants, and Piedmont, California.

Introductions by Richard Stoehr, Consultant to the Chairman and Chief Executive Officer, Homestake Mining Co., and Laura Madsen.

Interviewed 1987-1988, 1994 by Malca Chall for Western Mining in the Twentieth Century Oral History Series. Regional Oral History Office, The Bancroft Library, University of California, Berkeley.

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INTRODUCTION to Eleanor Swent, by Laura Madsen

INTERVIEW HISTORY--by Malca Chall

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IX CORPORATE HEADQUARTERS, HOMESTAKE MINING COMPANY, 1966-1983

[Date of Interview: February 19, 1988] ##

Part A: Operational and Engineering Responsibilities

Vice President, Uranium Operations and Clay Products, 1966-1970

Chall: We were going to talk today about being at corporate headquarters, at the home office.

Port Costa Clay Products Company

Swent: When I got back to San Francisco and started work in September of '66, John Gustafson said I was to be vice president of Uranium Operations and Clay Products.

The clay products included--well, it was there because of a business that Homestake had just recently gotten into, in the brick and lightweight aggregate business. They called it the Port Costa Clay Products Company.

Chall: Was that here, around the bay here?

Swent: Yes. It was at Port Costa, which is just between Martinez and Crockett, on the straits there. In the year before I came up, there had been a feeling on the board that they should have something in California, that Homestake was a California corporation and should have an operation in California. So they looked around at all sorts of stuff to buy, and one of the things that somebody came up with was this brick plant.

Chall: Is that all they were making, brick?

Swent: Yes. This was a family-owned business, owned by Mr. Berg. It was Howard Berg who owned the business. He wanted to sell it and retire. They made common brick there. They had a big, big shale deposit that they could make this brick out of. It was an old, old operation. It had been there for years. They originally had a bunch of sites where they built up a kiln with a batch of unbaked brick, then fired it and baked it. Then, they took the brick away, which in essence destroyed the kiln. Then, they built another one on the same site with new raw brick. This was the older method. The newer method was to have continuously fired kilns which were permanent rectangular enclosures, maybe 150 feet or 200 feet long, with moving metal conveyers that could stand the heat and move the brick from one end to the other. You would pile the raw brick on at one end and it would conduct it through different zones of firing, then a cooling section, and then come out the other end of this kiln as finished brick. This was a continuous process.

The Disappointing Lightweight Aggregate and Brick Ventures

Chall: Had they already established that?

Swent: Well, they had put in one such kiln. So the concept at Homestake--and I'm not sure who thought this up; I have no idea--but the idea that Homestake had was that this shale deposit would also make good lightweight aggregate. Now lightweight aggregate is a specialized product in the concrete business. Normal aggregate is just gravel that's been crushed and sized. Then it's used to mix with cement and water to make concrete. Lightweight aggregate is an artificial aggregate made by taking something like the shale, which has some carbonaceous material in it. When you fire it under the proper conditions in a rotary kiln, the carbonaceous material gassifies and expands a little bit and makes these pellets that you're putting through expand. Then you cool them and they're very lightweight, because they're full of gaseous space. You then use this to make your concrete, and the concrete weighs less. So for high structures the saving in weight becomes a very significant factor. You can build taller buildings and put more weight of steel in them, if you want, and that sort of thing, because the concrete is not as heavy.

Chall: But it's still as strong?

Swent: It's still as strong. So they had the idea that we could do this. So they commissioned a study by A. D. Little and Company on the

Swent Elected to Post

The election of Langan W. Swent as executive vice president and acting general manager of the Port Costa Clay Products Co., has been announced by Homestake officials.

Making the announcement today was John K. Gustafson, president of HMC and chief executive officer of Port Costa Clay Products, who said that Swent will fill the vacancy created by the resignation of M. A. Culver.

Swent is also a vice president of HMC and a director of the clay products firm. He served as administrative assistant to the manager of Black Hills operations from June 1954 to July 1957. Prior to that time he worked as a miner in the Homestake at Lead during 1946 and 1947 and then spent several years managing a mine in Mexico before returning to Lead in 1954. Since 1957, Swent has been manager of Homestake's New Mexico operations.

Port Costa Clay Products, a wholly owned subsidiary of HMC, is a large producer of common and face brick and manufactures lightweight aggregate for the construction industry.

feasibility of doing this. A. D. Little did a pretty creditable job and said, yes, it would work. But they made one caution. They said that they understood that the Kaiser sand and gravel and cement people were considering going into the lightweight aggregate business, and that if they did so that Homestake should not, because Homestake didn't have the marketing background to compete. This little piece of advice was disregarded by Homestake, and they went ahead and invested in the plant. They thought they had a big time lead on Kaiser and that they could get into the market and be established before Kaiser was there.

Well, what happened is the rotary kiln was ordered from Allis Chalmers, and Kaiser ordered an identical one to save time. They didn't have to go through any new design. Then Allis Chalmers had a big strike, and it held up delivery of the rotary kiln to Port Costa by many months. As soon as the strike was over they delivered it, and they turned right around and made one for Kaiser, so there wasn't really a great deal of time difference. The time difference had evaporated.

Anyway, John wanted me to watch this business and be in charge. This had been set up as a subsidiary of Homestake Mining Company called Port Costa Clay Products Company. We had a little board of directors which were all just Homestake employees. We would meet once a quarter. We had meetings of other subsidiaries, too, that I got put on.

Chall: Did you have a good manager?

Swent: Well, our manager, the president of the company, was named Art Culver, who had been the manager under Berg.

Chall: Berg stayed?

Swent: Well, Berg stayed on the board of Port Costa. He didn't stay on the job. Oh, he came out once in a while, but he essentially retired from the work. There was a tremendous amount of construction work for Homestake to do to put in the facilities for making the lightweight aggregate. We had to put in a crushing plant to crush the shale and then conveyers and then other devices. We had a set of ore bins and then some proportioning of other constituents to do. We had several different elements that went into the lightweight aggregate. We didn't do it entirely with shale. We had to add some sand and a few other elements. These would be proportioned onto a belt that went along and collected all of the constituents, including the ground and pulverized shale.

Then it went to what we called a pug mill, where water was added. This material was then just beaten up into a mud. But it

was a fairly thick mud. It wasn't a slurry like we would have in a uranium processing plant. It had to have a very thick consistency. Then it was forced through an extruder which turned out a bunch of stuff that looked like spaghetti, just round strings coming through this extruder of, well, probably a half-inch diameter. Then these would fall on a conveyer belt and be conveyed to the rotary kiln. There the rotation action of the kiln itself would break up the long strings into shorter pieces. These became individual pieces of aggregate. In the kiln, of course, these pieces got warmed up, would expand, and would be glazed on the surface, and then would be discharged at the lower end of the kiln. Then we would screen the material into different sizes and put each size in a separate pile for shipment and sales.

In addition to putting in this rather elaborate lightweight aggregate plant, they put in a second continuously fired brick kiln with the idea that that would be used to produce--it was a little more modern one than the first one--to produce a type of brick called face brick. The face brick would be colored brick, would be better materials than common brick, and would be used for institutional-type buildings, big things.

That required the importation of clays. We didn't have all the ingredients locally to make this. Depending on the type of face brick we wanted to make, we would buy different types of clays from Ione in California, which is well over 100 miles away. We would buy it in batches and this would be trucked down to the plant. But that was a long, long haul and it was expensive.

Well, they had brought down to San Francisco an engineer from Lead named Harold Sliper. He had been the chief engineer for surface works and construction up there. And actually he had come down and done some work for us in Grants. He had helped Frank Howell when we had to make a lot of changes and revisions in the Homestake-Sapin Partners mill. At any rate, Harold came down and was sort of in charge of the engineering. They had Western Knapp Engineering (usually called WKE) do the design work and construction. Harold was Homestake's top representative to Western Knapp.

When I got there the plant had been completed and they were just beginning to run the rotary kiln to make pellets. The business was not making money and was not living up to expectations. So John Gustafson said it was a sick baby and he changed our quarterly board meetings to monthly to follow it a little more closely. As I said, the manager and president of the business was Art Culver who had been the manager under Berg.

When we went into the lightweight aggregate business we hired an aggregate salesman named Bruce Johnston, who was a quite capable fellow. On the production side we hired a fellow named Charles Markakis, who was a ceramic engineer, a graduate from UC Berkeley, and was also quite capable. He knew the ceramics, how to fire these things and all that. It's quite an art, quite a science. Then we had a technical man to test concrete and brick products, named Paul Stodola. The accountant was a fellow named Walter Enns. When we found that we had problems we engaged a consultant from the Los Angeles area where there were a number of plants--many more plants putting out lightweight aggregate than there were here in the Bay Area. His name was Norman Pitt. All of these people were working for us when I got put in charge of the business.

In the Bay Area competition, there were three basic sources: one was up in Marin County, Basalt Rock Company. They had been in the business for a number of years and had been the only ones in the Bay Area for years. Then we came along and were second, and then very shortly afterwards, Kaiser came along and was third. The business had been financed by borrowing about two million dollars from the Wells Fargo Bank. Homestake had put in some capital also. The Wells Fargo Bank loan was direct to Port Costa Clay Products Company. I think they thought that they had the guarantee of Homestake there, but there was no signature of Homestake on any document. This later turned out to be a very key point.

Chall: Who signed it? Who authorized it?

Swent: I don't know who personally signed it, but it was signed on the document that said "Port Costa Clay Products Company," which really had no assets. The construction expenses had exceeded estimates, and at the last minute Harold had a lot of pressure to cut these expenses down. I don't know whether to say he panicked or not, because I wasn't here, but he did some things that were harmful in the long run. He substituted used equipment in some places where that wasn't satisfactory, and cut some corners.

The biggest mistake was the pug mill. There are different sizes and capacities of pug mills, particularly strengths--that is the force that they can exert in doing the pugging. Because the drier you make the mixture, then the more force it takes to make extrusions. The balance between the moisture content and the density of the extruded material is very important in determining the characteristics of the finished product. So anyway, he substituted a used and smaller pressure, lower pressure pug mill than had really been specified in the original WKE plant design.

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At first I didn't get into the Port Costa business very much. I was still carrying on a lot of the uranium business, but I now also had not only the Sapin Partnership, but also the operations in Utah. Under me we still had some uranium operations going up there. The manager there was a fellow named Ed Jacobsen.

Actually one of the first few things that I did when we got back in September of '66 was to go back down to New Mexico and take care of some business down there, go to Santa Fe. Then I came back through Moab and got acquainted with the North Alice Mine. By then the La Sal Mine had been shut down, and the Little Beaver Mine had been shut down. The only one that was still operating was the North Alice. But it had several years of life left in it. So I was dividing my time.

But as the fall went along, why, the problems at Port Costa got to be worse and worse. Then suddenly a problem came up called a "popouts" problem that had not been anticipated. It turned out that when they sold the aggregate and it was used in pouring concrete, then, when the forms were taken off, the pellets would have little pieces in them that would explode and cause craters. So you couldn't get a smooth surface of concrete.

This turned out to be a problem with calcite in the shale. Calcite is calcium carbonate. There are little pieces of it scattered in the shale, and when the shale went through the rotary kiln the calcite, $CaCO_3$, would lose its CO_2. The CO_2 would expand off, part of the gaseous material. The little pieces of calcite that would be converted to CaO, calcium oxide. When this was immersed in water, as in mixing concrete, it would expand slowly, not instantly, but it would expand, and when forms were taken off, why, if the pellet was near the surface and you had a little piece of this CaO there, it would expand and push out the little bit of concrete that was between it and the surface.

So this was a real serious problem, because concrete people quit using the product. They wouldn't use it, and rightfully so. So they sent me over to find out what this was about. Well actually, Chuck Markakis knew more about it than I did. Everything I learned was from him and from Norman Pitt. We looked over the mining plans and the drill holes and things that had been evaluated and found out that although the deposit as a whole averaged low enough in calcite for it not to be considered a problem, that there were some areas that were higher than others. So we had to shift our mining around and mine in areas where there was less calcite.

Then the other thing was that we could stockpile the pellets and keep them moist, wet them once in a while, to make them do their popping before we sold them. We would build a pile and do

this, then we would occasionally sample it. When we figured that all the popouts had occurred, then we would sell it.

Chall: Meantime somebody else would be selling it.

Swent: Yes. This meant a further delay, of course. The face brick business went fairly well, but it wasn't very profitable because of the high cost of imported clays. We had a very high cost labor force. Our labor force was essentially a Bay Area labor force, and our competition in the face brick business was, oh, a plant up near Sacramento called Muddox, which was owned by some Chinese people. They had a much lower labor rate, and a shorter haul to Ione. So it was difficult to compete with them and make any money. We could get the orders by lowering our bids, but frequently they were right at cost.

And we didn't have a good cost accounting system anyway. We couldn't tell brick costs from aggregate costs. We finally got costs broken down to between brick and lightweight aggregate. Then I thought that wasn't sufficient, and I asked to have a Homestake industrial engineer named Ralph Tibble come over and set up a cost accounting system so that we could tell what each run of brick cost. Everything was done by runs. You would make so many thousand of a type of brick and then run them through the kiln. Then if it was face brick, you might change the color or change the firing temperatures. They were all made to order. Common brick weren't, but we still divided it up into runs, just to keep track of it. It took him several months to do it, but Ralph devised a method of accounting for the cost of each run of brick. This was a big help.

In addition there was a third line of business called Houston Sealer. This was just a sales business, a marketing business where we were to market somebody else's product. Houston Chemicals down in Alhambra, California, made a moisture sealant that you could paint on brick or concrete to keep moisture from penetrating. Art Culver had taken on the distributorship of this and expected great things of it. And this wasn't doing very well either. They weren't living up to their sales expectations in any way, shape or form. So we finally dropped that.

Finally--and I'm not sure when; it must have been maybe six months or a year after I came up here--John Gustafson finally fired Art Culver and put me in charge of the operation. I still had the uranium business to carry on. This really stretched me a lot. I was driving back and forth to Port Costa. One of the things that Port Costa suffered from was being too close to the home office. Everybody had the answer for what the problems were. Everybody was putting their finger in the pie in Port Costa. The accountants

were calling up all the time, and everybody else was getting into the act. It was too close to the home office, really.

Chall: That's an interesting point.

Swent: The first month that I was in charge we made money. It was the only time in the history of Port Costa that they made money. But this was a fluke. Everybody said, oh, we've solved the problem! We've put Swent in charge. But I said, no, that wasn't it. That was just a fluke of the numbers, that we hadn't solved any problems that easily. I hired a fellow named Jack Richter, whom Art Culver had located. He had excellent experience in running brick yards. He had no lightweight aggregate experience, but we needed somebody to take overall charge. We didn't really have a good production person there. So Jack did help quite a little bit and got things a little better organized.

By then Frank Howell had been transferred to San Francisco to act as a corporate metallurgist. This was part of John's buildup of a central management. So I got Frank to go out to Port Costa and help with redesigning and fixing up some of the material handling things that I knew were along his line. He was a great help there. I put Bruce Johnston in charge of all sales. Before he had been just in charge of the lightweight aggregate sales. Art Culver had handled the brick sales, and had three salesmen working under him. So I put Bruce in charge of all three, and he had to, of course, learn the brick business and the brick sales business. Charles Markakis continued as ceramic engineer.

We got the popout problem solved finally, and sales began to pick up a little bit. Then all of a sudden the next problem we ran into was the problem of using the lightweight aggregate in concrete that had to be pumped up a significant height. You can pump concrete up 100 feet maybe. There is equipment that does this. Of course these pellets are not smooth. They have a ceramic finish on the outside, and if you put a magnifying glass on them you see that they have lots of little cracks in them.

Concrete has to be mixed at a certain ratio of water, cement, and aggregate to come out with the optimum strengths. If you have too much water in it, it gets too weak, and if you don't have enough water in it, it doesn't set--this sort of thing. So one of the things you watch very closely in the making of concrete is that you get the right proportions. On the level where the concrete would be mixed with the lightweight aggregate and then poured, there was no problem. But when they began pumping it they found that if they mixed it at the right consistency on the ground and then started pumping it up, say, fifty feet, that as it rose through the column the little cracks in the lightweight aggregate

would absorb moisture out of the concrete mixture. The concrete would get drier and drier the higher it went. Eventually it would get so dry it would plug the column, and they couldn't pump it.

So we had to find a way around this. Norman Pitt was a big help. We finally got him to design or have designed for us a little automatic plant that required very little labor. It was a batch plant. We would put a batch of the aggregate into a tank, seal the tank, and then apply a vacuum pump to it. This would evacuate the air from inside the tank and create a vacuum in the tank. When the vacuum was high enough, we would fill the tank with water, then suddenly open the top so that it suddenly went from this vacuum to full atmospheric pressure. This would drive water into these little cracks and it wouldn't come out again, because it was in there under vacuum and driven in by air pressure. Then it wouldn't absorb any more moisture when it was pumped. That solved the problem, but--

Chall: Yes, but every problem is somewhat of an expense.

Swent: This was an expense and a delay.

Chall: Meanwhile, over at Kaiser--

Swent: --they were making progress. Although Kaiser had their own problems.

Chall: They probably had to face some of this too, I would think, unless they knew about it in advance.

Swent: Well, their deposit was different. The problem they had with their deposit was it had too much sand in it. At any rate, the little plant worked fine.

Our biggest money-maker in the brick business was something called antique brick. People used it a lot in fireplaces and things like this. It was just stuff that looked like brick that had been taken out of an old building and then re-laid. It had mortar on it and the corners were chipped and this sort of thing. We made it from common brick by just putting it into a concrete mixer and tumbling it around and adding some lime and tar. You know, put it through the concrete mixer for a few minutes and then dump this load out. This would chip the corners and get the mortar splashed on the brick. The tar was to make the mortar stick. Then we would let it dry and sell it. And we got a premium price for it. But it was very labor-intensive.

Then, we devised and installed a little plant that we put in as an extension of one of the kilns. When we wanted to, we could

take the common brick as it came out of the kiln and just feed it right into this antiquer that required no labor. It was all automatic. And that worked pretty well, too, but the volume--although we made good money on antique brick, the volume of sales wasn't great; the demand for it wasn't too great.

I had hoped that Jack Richter could eventually work up and take my job and I could get out of it. But it became apparent that Jack couldn't do that. Jack was a good man at his level, but couldn't rise too much.

The other problem we had was labor. As I say, the labor force was a Bay Area labor force, high-priced.

Chall: Union, also.

Swent: It was union. And prior to my getting into it, we had joined a Bay Area association of miscellaneous employers who bargained as a unit. I think it was the warehouseman's unit or something. But very high wages. We didn't have any strikes or serious labor problems, but we just didn't have very good productivity. These fellows had been working for many years and not working very hard. It was pretty hard to break that.

At any rate, Jack did reorganize some of the work and was able to save a little bit of labor. But he couldn't really improve any --make anything drastic in the brick business. So I looked around and got a headhunting firm to look for somebody really knowledgeable in this business. We finally came up with a fellow named Ray Brown that we hired and made general manager. I was really going to try to get out of it.

Vice President of Operations: Additional Duties, 1970-1975

Swent: Ray Brown came up with lots of ideas. This had now dragged on into about 1970. In 1970 I think it was that Paul Henshaw became president, took over from John Gustafson. At first it didn't cause much change. But he wanted me to be what he called the vice president of operations, in charge of all Homestake operations except the gold mine. He felt that he should keep the gold mine under his own wing, because traditionally this had been the president's responsibility. Paul was not experienced at all in operations. He had always been in geological jobs, exploration jobs, and had not had any direct operating experience. So he put me in charge of all operations other than the Lead one, and he dealt with the manager there himself.

Manager, Homestake Forest Products Company: Spearfish, South Dakota, 1972-1974 ##

The Spearfish Sawmill

Swent: In that capacity, I guess I'll talk about the Spearfish Sawmill. Since the inception of operations in 1877, Homestake Mining Company had had a logging and sawmill operation to make mine timber. They use tremendous amounts of timber. They had a lot of land that they'd acquired surface rights to in addition to the mineral rights. They had a lot more surface rights. This was all in the Black Hills and all forested, so they had tremendous timber reserves.

Chall: Black Hills of where?

Swent: Black Hills of South Dakota. The forests were principally Ponderosa pine. This was essentially what was used in the mine timbers and what the sawmill processed. Over the years there were several sawmill locations. One was at a place called Nemo, then later it was moved to a place called Moskee. Then in about 1939 it was moved to Spearfish in South Dakota, which is a small town on the northern edge of the Black Hills. It's about nineteen miles by road from Lead and the elevation's considerably lower. It's only about 3,000 feet. Lead is 5,280. So it gets a much less severe winter but a much warmer summer.

Some time, and I'm not sure when, they went into outside sales, that is, selling lumber to customers and clients other than Homestake. As far as Homestake went it was just a captive operation and was a part of the gold mine operation, part of the mining costs, because it actually replaced having to buy timber. And the income from outside sales was just treated as a reduction of expense; it wasn't accounted for separately.

From 1939 on there was virtually no change in the sawmill. The equipment and everything just stayed the same. When Paul Henshaw became president, I think around 1970, after he got somewhat acquainted with his new job, he questioned the economics of running our own plant.

There are several things that happened. One, the mine consumption of timber was much less because new methods of ground support, particularly the use of rock bolts, had come along. And he questioned whether it was an economically viable enterprise. To test this he decided to put it into a separate subsidiary called

Homestake Forest Products Company and get separate management and accounting and see how it stood, whether it would make money or not.

Relationships with the Steelworkers Union

Swent: One of the problems of doing this was that it was actually a part of the mine bargaining unit with the United Steelworkers. So the labor contract applied to both the mine and to the sawmill and timber operations.

Chall: That included the drivers, all those people?

Swent: Yes. So in 1972 we had a labor negotiation with the Steelworkers at the gold mine, and actually they went on strike July 17 of '72. The strike lasted about a month.

Chall: Was that over general working conditions? It had nothing to do with Spearfish?

Swent: Well, the cause for the strike had nothing to do with Spearfish. It was basically wages, at the gold mine, that was the problem. One of the issues was that the men wanted a forty-hour work week, and we had been working a forty-eight-hour work week--six days a week, because we needed the extra day to get the mine production. We couldn't get enough production to be economical with a five-day operation.

Chall: Were they being paid overtime after forty?

Swent: Yes. They were getting fifty-two hours pay for forty-eight hours of work. So there was something to be saved there in the way of wages, but the problem was that we knew if we cut to a forty-hour work week that the men would expect the same amount of take-home pay. They'd probably want their hourly rates adjusted so that their take-home pay was still the same as it had been under the forty-eight-hour work week. This was actually what the union wanted. They wanted a forty-hour work week but they didn't want to give up the income. So this was basically the cause of the strike.

We took advantage of the strike and when it was settled, part of the settlement was to sever the bargaining unit and make the sawmill and the timbering operations a separate bargaining unit. The union finally agreed to this. Our attorney for the negotiations had been Leonard Pickering from Albuquerque. He finally settled this with the district manager of the Steelworkers,

Frank McKee, who came up after the strike began to try to settle it. So then we had to get NLRB permission to divide the bargaining unit. But once the union agreed to it, why, we were able to get that. It took a few months, but that came along all right.

Chall: You mean, that the Forest Products Company would have continued, using the Steelworkers union as their bargaining unit?

Swent: Yes, but as a separate bargaining unit, entitled to negotiate their own contract.

Chall: I'm surprised the Teamsters didn't come in on that. The Teamsters usually take over that particular kind of work.

Swent: Actually the Steelworkers had two or three other small mills in the area. I don't remember that the Teamsters had any there.

Chall: I see.

Swent: So we had set up the separate bargaining unit and set it up as a separate subsidiary. They began operations on their own. This separation was based on sort of an interim letter of agreement, to which the union had agreed. There was no contract. And the wages that Homestake Forest Products was to pay were just a continuation of the old labor contract under the gold mine. They had agreed in this letter of agreement to negotiate a new contract.

So I was back working with Pickering. I had not worked with Pickering for several years because he was in Albuquerque. But once Paul Henshaw asked me to get into the Homestake Forest Products Company and manage it, in late summer of 1972, I had a lot of dealings with Pickering for the next year. We met many times.

The other guy that we had to deal with for the union was a fellow named Linus Wampler. He was the international representative for the Steelworkers. He did not reside in the Black Hills. I think he lived in Minneapolis. He was their chief negotiator, had been for several contracts at Lead. Then there was Frank McKee, who was their district manager and was Wampler's boss. Wampler was a real large-frame man, very grossly overweight, very smart, very capable with handling the English language and very tricky. He was a good negotiator and he was a real rabble-rouser. If he wanted to get his men upset and uptight and everything else, he could certainly do it. McKee was a much more reserved type. He did not resort to histrionics or anything. He was very quiet but very capable. And as I said, he was the one who had come to the agreement with Pickering on severing the units. This was part of the settlement of the gold mine strike.

Another thing that they did to settle the strike was to go a forty-four-hour work week. They cut it down for a year and then would go to a forty-hour work week in another year, and managed to go through without a drastic increase in the hourly wages, so that the take-home pay actually was reduced a little bit.

We had had this experience in Grants in 1960 of going from a forty-eight-hour work week to a forty-hour work week, and it's a very touchy issue. At that time we did it when the AEC began cutting back its purchases. We explained this to the work force with letters and tried to make it real clear that we just didn't need that much production anymore in Grants. And it worked, the men accepted it. I was quite afraid at one time that this might lead to some unionism, but it didn't. They accepted it, they knew what was involved, because the other companies did the same thing. Kerr-McGee went the same way and Phillips went the same way, and Anaconda.

So anyway, I stepped in to manage Homestake Forest Products Company in late '72. The manager of operations there was Bill McGrath, who lived in Spearfish. He was from an old and large Black Hills family that was well known. His brother Dick was at the time sheriff of Lawrence County, which is the county that Lead and Deadwood and Spearfish are all in.

Chall: Had he been working at the mill before, managing it before?

Swent: Yes, Bill was a graduate forester and knew his forestry very well. He was a good forester. Unfortunately his wife--he had a very nice wife--and she over the years gradually went blind. By the time I was into the act she was almost totally blind. She could see a little bit of dark and light and that was about all. It was some sort of illness that just gradually came on.

Analyzing the Economic and Management Problems of the Sawmill

Swent: At any rate, I went up to Lead and Spearfish to take over on this in August of 1972 and spent a week up there with Homestake Forest Products and found that they had several real acute problems. One was that although Bill McGrath was a good forester and knew the operation of the sawmill, he wasn't at all business oriented. He didn't understand the cost statements and he didn't know anything about labor law or fair labor practices and this sort of thing. So I had to tutor him on some of those matters.

Secondly, the accounting had always been done in Lead. Homestake Forest Products Company had no accountant. They always just turned in all their data to Lead to do the accounts and to produce cost statements, which were produced as part of the gold mine operation. Now that they were separated, why, these were still being done by Lead but on a sort of a contract basis. It took very low priority because it was no longer essential to the gold mine records. They gave the gold mine accounting priority, of course. So the statements were slow and usually quite late. When Bill got them he didn't understand them anyway.

Then a third item was that the state had made a formal finding that the sawmill's tepee sawdust burner did not meet the new environmental standards for smoke emissions. They gave us a six months variance to operate while we did something about it. This was probably one of the most imminent, pressing crises.

And fourth, of course, was the general union situation and negotiations. We had a commitment to undertake negotiations and get a separate contract. We had a real problem on the wages because they were far too high for a lumber and sawmill operation. There were other sawmills in the area, and our wages were far higher than theirs because they had been tied to the gold mine.

Chall: Did this include the loggers?

Swent: It included loggers; we did our own logging.

Chall: And trucking?

Swent: Trucking; we had our own drivers, our own fleet of trucks.

Chall: Did you set up your own roads?

Swent: Yes, we built some of our own roads.

Chall: That's more than sawmilling.

Swent: Yes. And we did a lot of work with the Forest Service, leased land from them and cut it under their guidance, as well as our own land.

Chall: Reforestation? Was that also part of your scheme?

Swent: Yes, we did a lot of replanting, replacement planting. By the time I got there they were already operating on a sustained yield basis whereby the amount of planting that they did each year would replace the amount that was logged each year.

Then on the union side we had the forty-eight-hour work week still, and the problem of trying to get to a forty-hour work week and still make money and not have the wages hiked up on an hourly basis to give the same take-home pay. This was a real problem, because with the equipment that we had in the sawmill we couldn't produce enough on a five-day week to have a commercially viable operation.

The last item was we just generally had kind of poor morale all the way around. Throughout the whole operation, everybody there felt they were sort of a stepchild of a mining company. They had tried, before I got into the act, a project for modernizing the mill and this had been turned down. They were forced to go along with the same old equipment. The hourly paid people were upset because they didn't get the new gold mine wages and they faced an uncertain future without a contract, so it was kind of poor all the way around in morale. But in time we managed to get that taken care of.

Swent Develops Solutions

Swent: So I settled down to the job. The first thing was to kind of train Bill in labor law and cost accounting. He was smart and he picked up pretty well on these things. I gave him some pointers on public relations and employee relations. None of this had he had to do before, because this was all handled by Lead. Bill was very well liked by the men, by the crew, so we had no problem. At that time I think we had 162 employees, including the loggers.

So the first thing we did was hire an accountant from Spearfish, a fellow named Esa Haataja. (That's a Finnish name.) We sent him to San Francisco for a week of training on the Homestake accounting system and then he came back, and he did very well; he very quickly was able to take over the cost accounting from Lead.

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As far as the sawdust burner was concerned, we finally managed to solve that. The sawmill had a small wood-drying kiln, and this was heated with steam; we had a little boiler. The commercial demand for dried lumber was increasing, because we were replacing the decline in mine demand for timber with outside sales. The mine had never used dried timber, generally speaking, they had always used just raw timber. So there was a demand for more dry-kiln capacity.

We decided that the solution for the sawdust burner was to put in a second and larger drying kiln that would be steam-fired and put in a new boiler which would burn sawdust and bark. At the time the old boiler did not burn any of this. I think it was natural gas, although it might have been diesel fuel, I'm not sure. We were burning all the sawdust and all the bark in the tepee burner, putting out smoke all the time. So by putting in a boiler that would burn these and burn them to the extent that no significant smoke was produced with the proper controls on it, why, we would eliminate the smoke from the portion of the sawdust and bark used in the boiler. We still produced more sawdust and bark than we could burn, but we reduced the smoke by a very large percentage, and the small percentage of sawdust and bark that was left could still be burned in a tepee burner and not violate the environmental standards. This took a few months to do and get installed but it worked fine. We had no real problems with it.

Difficult Negotiations with the Steelworkers Union

Swent: Then of course we had to begin the negotiations with the Steelworkers. Our first meeting that we had with them was in January of 1973 in Denver. We preferred to meet away from the plant so that there wouldn't be too much interplay between the negotiators and the men in the unit. The principals were there, of course, Wampler and McKee, and they had several of the men from the plant. It was a one-day session. We had a proposal that we did make. It was basically along the lines of reducing to a forty-hour work week with no increase in hourly wages. This was unacceptable so we didn't get anywhere. It just adjourned with no subsequent meetings scheduled.

We didn't meet again until July. Then we met in Spearfish for three days. By then we had another proposal. This one was for a two-tiered wage system, which was that the old employees, those on the payroll at the time this went into effect would retain their old wage level, and new employees would come in at a lower level. We just could not really see going through with the constant increase in wages and keeping up with the gold mine wages. We had to really get on a level with the wages of other sawmills in the Black Hills. There were lots of them; we had plenty of wage scales to compare to. The alternatives were to buy the lumber from other sawmills and go out of business, or else find a way of reducing wages and increasing productivity.

We wanted to go to a forty-hour work week with no increase in take-home pay. Well, of course, they didn't accept that. So again

we adjourned without another meeting set. And we kept on working. And that was in late July.

The Swents Vacation in Europe

Swent: At the end of the month I left on a vacation trip. Our youngest daughter, Jeannette, played the violin in a youth symphony orchestra from Berkeley. The orchestra had gotten an invitation to play in the international youth symphony orchestra festival in Aberdeen, Scotland. They had raised the money for transportation and managed to get a discounted air fare for the group and needed chaperons. So Lee and I agreed to go along with them and this would be part of my vacation. So we flew over and got to Aberdeen and were there for the two-week festival.

There were twelve different youth symphony orchestras there from different countries. Jeannette's was the one from the United States, and it was one of the best. The only one that was really any better was maybe the Germans. The Rumanians were very good, too. But both of those are structured very differently. They specialize in this right from the time they're kids, and they're trained for it and subsidized by the government. Their government paid their way and everything, whereas we had to raise our own funds. It was all volunteer, with the parents paying for the children's training. Anyway, the Berkeley orchestra took a good number of prizes.

Then the conclusion was they selected a number of people from each of these twelve orchestras and they were to go to London and play under the direction of, I think it was Leopold Stokowski, for an exhibition in London.

We had concluded the part in Aberdeen when I got word that they had a crisis back at Spearfish. So I flew back from Aberdeen to London to Chicago and Lee went on with Jeannette to London. That was only three or four days, and then they came on back. I had to cut it short by about a week--well, less than a week, maybe four days.

At any rate, it's interesting. I got to Chicago and I had to stay overnight there in a motel and fly on out to Rapid City the next day. When I was just outside the terminal building carrying my suitcase I suddenly got a very sharp pain in my right arm, in the upper arm, very sharp. The only way I could make it feel any better was to hold my elbow right close to my ribs. And it bothered me all that night, flying out the next day to Rapid City

and all that next night. Then the next day it disappeared. Well, this turned out to be one of the symptoms, the forerunner of my illness that came up the following year, in 1974, but at the time I didn't recognize it.

What had happened in Spearfish was that the union had asked for a federal mediator to come. He had set the date and I returned from Aberdeen in time to meet with him. We met with him on August 16 and 17, off and on with the Steelworkers. Most of the time he was just going back and forth between us; we were in separate rooms. That was his method of working. But basically there was no progress made and after two days he left.

The Two-Day Strike

Swent: So that was mid-August. I returned to Piedmont about the time Lee and Jeannette got back from Aberdeen. Then we mulled around, did nothing, just kept operating. Then about September 10 the union decided to strike. They had a membership meeting to vote on this, and there was a lot of dissatisfaction with that meeting among the men. They were not allowed to have a secret ballot; it was one of these stand-up-and-be-counted types. A lot of the men objected to that, because that discouraged voting against the strike. So the strike started.

Our counter was to announce then that we were putting our proposal into effect. Under labor law we were allowed to do this. We had already told them what the proposal was and they had had the chance to negotiate on it. They were on strike, so we were free to put it into effect. We said all new hires from this date on would be at the lower wage scale and that anyone who came back to work that was previously on the payroll would be protected in their wages. There were a lot of people that weren't very strong union advocates anyway, and they wanted to work.

We set up a system telling them that we would give them work, but that for their own protection they should resign from the union because otherwise they were subject to fines and disciplinary action in the union. We had all that worked out. We got a number who did that and came back to work. But just in a matter of a day or two the union members held another meeting.

Well, let me go back a little ways. We had picket lines, of course. These were peaceful. We got some pretty good coverage by the sheriff, who was Bill's brother. One of the things we were afraid of was fire. We had a tremendous inventory of lumber

stacked outside in fields. It was all fenced in but it was really quite a fire hazard. So we got him to do periodic rounds at the fence, just to see that there was nobody hanging around there, waiting to toss something into the area and start a fire.

So after two days, they held another union meeting. And Wampler lost control of it. The men were so vociferous about going back to work. They didn't want the strike to begin with; he had sort of coerced them into it. They voted to go back to work and left the meeting. They didn't give Wampler any indication of what he should negotiate for. He was kind of at a loss, I guess, as to how to proceed. So anyway, he telephoned Bill McGrath to tell him about this.

Of course, I was still there at Spearfish. I had gone up when the strike started. He phoned Bill McGrath at home that night to tell him that the men had voted to go back to work. Then he tried to kind of negotiate terms with Bill. But we had primed Bill so he wouldn't make any commitments over the telephone, he'd just listen and say, "We'll discuss it and let you know." So Wampler didn't really make any headway there.

They came back to work the next day in full force and we continued working, actually without a contract, but under the terms of our proposal, for about a year after that. The Homestake board of directors usually meets in Lead once a year. They were having their meeting in Lead at the end of this particular week, so I was able to go up to Lead and join their meeting and report that the strike was over. It lasted two days and was probably a very healthy thing, it cleared the air a great deal.

The Potential Chip Board Enterprise

Swent: Then one of the other things that came up was very interesting. We got an approach from a company in Minnesota. I can't remember their exact name. They were located in Grand Rapids in Itasca County. It was a paper-making company. They made paper out of wood pulp. It had been individually owned for a long time and the owner had no heirs so he had willed the entire business to the people of Itasca County. That was really a county-owned business now.

Anyway, they had developed a process to make press board, which is kind of like plywood, but it is made out of wood chips, by pressing and gluing these chips together and making a very strong board. This was at that time a new product. Particle board had

evolved at that time and this chip board was new. They wanted to build a plant at the edge of the Black Hills and buy their material for chips from us, because we had the best forest reserves and they wanted a good source of supply. So they invited us to go back to Grand Rapids and see the plant, and then invited us to participate in the Black Hills plant when they built it.

So Bill McGrath and I went to Grand Rapids and saw the plant, and also went through their papermaking plant while we were there. It was a very interesting process. They had worked almost all the bugs out of their new process. We decided we would go along with them. The next step was for them to go ahead and build their plant. However, they never built it. I don't think they've built it to this day. And I'm not really quite sure why; I think it was that they just didn't find the market for the chip board that they thought they would have.

Chall: Were they going to buy lumber from you?

Swent: No, what they were going to buy from us would have worked out very well. They wanted small limbs and small poles. They didn't want big, heavy logs. They wanted these small things that they could chip. This was ideal because this was what we were throwing away and burning. When we logged a tree and cut it, we cut all the branches off. They were all too small to make any lumber, so most of them were just being piled up in the forest and occasionally burned. This would have worked out very well. It would have been a by-product operation for us.

Chall: As long as they didn't build the plant they couldn't purchase the material?

Swent: Nothing came of it, no.

Chall: I see.

Renovations and Improvements in Productivity

Swent: Then we had to try to improve our own productivity. Spearfish management had already been turned down on a big renovation, so I was a little bit leery about recommending that to Homestake again. The plant did need renovation, there was no question about it, to be efficient. We did manage to get an approval for the capital expense of putting in a new headrig--the second saw. The first saw just cuts the logs into lengths. That one we didn't change.

The second, which we replaced, took the logs that had been cut to a given length, say eight feet or ten feet--whatever was in demand at the moment--and would skin what we called the slabs off the edges. That would cut a piece shaped like a segment of a circle each side so you then had two parallel sides. Then it would flip the log and cut two additional slabs off the other two sides, so you then had a rectangle. Then that was feed for the rest of the sawmill.

This was a very old and ponderous rig. I think it had been used elsewhere before it was installed in Spearfish in 1939; I don't think it was new then. So we replaced that and put in a new device for debarking the logs.

We put in a new log feeding system. The previous system had been to dump the logs into a pond. Then we had pole men who poled these logs to a conveyer, which would pull them up and debark and cut them into lengths. The logs could be delivered onto the new feeding mechanism by a front-end loader.

This eliminated the pole men. We kept the pond because we needed the water for our fire-fighting system. But we eliminated all the labor that was involved with putting the logs into the pond and then poling them around and getting them out again.

We had some bugs in the system, but eventually we worked all of those out. So then we were encouraged as a result of that to start thinking about a real renovation of the mill, long-term changing it. We decided that maybe the way to do it, instead of going in and requesting multi-million-dollar investment in new equipment, was to do it by stages. We'd already done one stage, and that had helped get our productivity up. We were now working a forty-hour week but we were losing money because we needed additional productivity. We did make some plans for additional changes.

Reorganization and Further Union Negotiations

Swent: Some of those were being done at the time that I got ill in May of 1974. As I've said before, I was off work then until January 1, 1975. During my illness Paul Henshaw assigned an accountant named Pat Tynan from the San Francisco office to run the Homestake Forest Products Company. Pat was an accountant and a sort of financial analyst, very conservative, a bright fellow with a very strong Irish accent. But he had no experience in managing a business. He didn't know anything about the forest products business. He

learned some of that pretty quickly, but the labor problems were really beyond him. He had no idea of how to cope with them.

Leonard Pickering had gotten on the outs with Donald Delicate, who was manager at Lead of the gold mine and had previously worked for me down in Grants. In fact, it was Don and Ken Kellar that had decided to bring Pickering into the Lead negotiations. But after the strike settlement, Don told me that he was fed up with Pickering and that they'd had a real disagreement, that he was not going to use Pickering anymore. So this rubbed off onto Pat Tynan and he wasn't going to use Pickering. He took Don's advice while I was ill.

He was kind of then on his own for negotiating with the Steelworkers. He eventually decided that the two-tiered wage system wasn't practical, because it created a situation where people were working on the same job with different wages. The union was adamant about this. We had faced all this at one time and we'd done quite a preparation job with letters to the employees showing many examples in industry of where this one-job-one-wage business is a delusion. It exists in some places but in many places it doesn't.

Many unions have negotiated arrangements where wages are different. Examples are where, like the communications workers, they get increases in wages based on seniority and based on training. Teachers get increases in wages due to credits that they get from going to courses, yet when they're teaching something, they're teaching the same thing as the next person and they're working at different wages. And all of this is union-sanctioned.

We made quite a point of this and we had it pretty well accepted, but they were able to buffalo Pat out of it, I guess. At any rate, he used giving up the two-tiered wage system as a negotiating tool for getting a pretty fair contract out of them.

In 1975 Homestake went through a massive reorganization and went on what they called a divisional system. Pat Tynan was replaced on the job by a fellow named Martin Koffel. He was an Australian, actually, who had been working for us for quite a few years in the marketing of our lead and zinc concentrates and lead and zinc metals that we had from Missouri. He had built up a very large marketing organization--and that was primarily a business venture of its own. He had nothing to do with the production; it was entirely a selling business and handling of long-term contracts and shipments. Anyway, he got charge of the sawmill and he knew a great deal more about business and how to run it than Pat Tynan had.

They went through a big renovation. I don't remember just quite when, but anyway it was completed. It had a number of bugs in it and they were gradually working out these bugs and working up to their target production.

After a Disastrous Fire in 1980 Homestake Sells the Millsite to Pope & Talbot

Swent: Then they had a fire in February, 1980, a tremendous fire that just destroyed the entire plant. It was in the middle of a week when I happened to be in Lead on other business, and I went down and saw the wreckage on Friday. It was a complete loss, absolutely complete loss. The investigation indicated that it was arson, but they never brought any charges on it. They had no idea who did it.

So then Homestake was faced with what to do, rebuild the plant or what. The first thing they had to do was negotiate a settlement with the insurance company. They finally negotiated that and I think they got a $14 million payment out of it. Then they decided not to rebuild the plant themselves but to go out of the sawmill business, to sell the sawmill to Pope and Talbot, which is a well-known lumber and timber organization, and to keep the forest reserves, to have Pope and Talbot do the logging but sell the product on a stumpage basis to Pope and Talbot. Pope and Talbot eventually rebuilt the mill. It's operating today on that basis.

Controlling the Black Hills Beetle

Swent: One of the big problems that I didn't mention was what they called the Black Hills beetle. [shows picture, front cover of Sharp Bits]

Chall: Oh yes, this is a grim-looking fellow. He's enlarged, of course.

Swent: Yes. The Black Hills beetle is a very small beetle that bores through the bark of the pine trees and then lays its eggs right underneath the bark. It generally bores a little channel that's vertical in the tree and maybe just a little depression, maybe six to twelve inches long, and lays its eggs along this little excavation that it's made under the bark. Then the eggs hatch into larvae which feed on the sap that's running right along the cambium layer, which is the outermost and in a growing tree is the current growth ring. That's where the sap circulates and comes up. When the larvae hatch from the eggs they begin to eat the sap. And they

go horizontally and start to encircle the tree. Once they've encircled it then the top of the tree from there up is deprived of any sap, and the tree will die. The other thing that happens when the beetles enter is that they have some sort of a material that stains the wood a little bit, it stains it a little bit dark.

Anyway, these were a big problem in the Black Hills. In the days when I was in charge of it there we had a resurgence. They'd always had the beetles, but sometimes they're under control and sometimes they're not, and there was a resurgence of beetle activity in those years. We had to put on a very strong campaign to fight them.

The campaign was two-fold: one was spraying trees, we had a crew that went out and sprayed trees. Now this did not save a tree, but the way the beetles propagate is once the larvae have converted into beetles (it takes about a full year for this cycle to take place) they bore out and then come out usually through one opening. All of the ones that have been hatched in one place will come out through one opening. Then they fly. They can't fly very far, but if they're in a forest they don't have to fly very far before they hit another tree. As soon as they hit another tree they repeat the cycle: they bore in, they lay eggs, and so on. So once you have one infested tree year by year it spreads around that tree in sort of a circular fashion. So the spraying was to kill the beetles while they were still in the tree so that they wouldn't fly and infest neighboring trees.

Then the other attack, in areas where accessibility permitted it, was to actually cut down and log the trees that had already been attacked by the beetles and get them out of there. That was of course more expensive and laborious. Some of the wood was usable but as I say it would be stained; it has these black, dark-colored stains in it. For many purposes the stain didn't do any harm. For some purposes people didn't like the stain and didn't want the wood.

Anyway, that was a big problem, and we had a continuing program on it during the summers. You couldn't do too much in the wintertime because of the snow. In fact, we didn't log at all during the heavy winter snows and didn't do any forestry work.

The trees have a natural defense. A big tree if it's not hit by too many beetles will survive. When the beetle bores in if the tree is healthy it has lots of pitch, the pitch will come back out through the hole that the beetle makes and will expel the beetle through its own hole. This is called "pitching out." This happens a fair amount of the time. A good healthy tree is able to defend itself. The other thing is that woodpeckers are natural enemies of

the beetles. They eat the larvae and the beetles. But when there's a big resurgence or a big infestation it takes several years to build up the woodpecker population. So it isn't an instant reply, but it's nature's way of controlling it.

Chall: Could there be quite a number of beetles in one tree, circling it?

Swent: Oh, yes.

Chall: So one circle wouldn't do it.

Swent: There could be thousands of them.

Chall: Yes, I see, all up and down the tree.

Swent: And you'll see stands of trees that have been diseased. When they're diseased and dying of course no nourishment gets to the pine needles. They turn brown and they stand out in the forest and in color pictures. Here, this shows you how you can see those.

Iron Ore Venture in Australia

Chall: What else did you add to your duties as vice president of operations?

Swent: Well, we had an iron ore venture going in Australia. It was a joint venture with Hanna Mining Company of Cleveland and Western Mining Corporation of Australia. We had developed the first of the Western Australian iron mines there. Later some tremendous ones developed. The one we developed wasn't so big, but it was the first one, and it sort of led the way. We had obtained a Japanese contract to sell the ore to Japan, and the Japanese had built two special ships to transport the ore from the port of Geraldton in western Australia to Japan. The venture had put in a big stockpiling and loading facility at the port. They had a multi-year contract with the Japanese. It was a contract for the life of the ore body.

Production began, I think, sometime in 1966. The arrangements between Homestake, Hanna, and Western Mining were Homestake 25 percent interest, Hanna 25 percent interest, and Western Mining 50 percent. Hanna was the iron ore company. They had iron ore experience in the United States. Homestake had none. Of course, Hanna was John Gustafson's employer before John had come to Homestake, so that was where that connection came from. John knew lots of people there, including their chief exploration geologist,

Fred Chase, who was the one that Paul Henshaw worked with when he was Homestake's exploration geologist.

Paul, Fred Chase, and Western Mining representatives went up and located this particular ore body. It was called the Koolanooka Ore Body, and it was located near a little town called Morawa, oh, a couple of hundred miles north of Perth, 125 miles inland from Geraldton. It was a very small and isolated area. At any rate, he and Fred Chase had gone over and gone through all of this country with Western Mining, who of course were able to get the concessions from the Western Australian government.

Among other things they went up and sat on top of Mt. Newman. Fred Chase ventured the opinion that it wasn't worth bothering with. This later turned out to be one of the most tremendous ore bodies. It had millions of tons. You're talking in the 200 or 300 million-ton range. The Koolanooka was something like seven or ten million tons.

Copper-Lead-Zinc Venture [Madrigal] in Peru

Swent: At any rate, Paul put me in charge of that interest. In the meantime we had developed a venture in Peru [Compania Minera del Madrigal], called Madrigal for short. Henry Colen had come to work for Homestake at about the same time that I came; the same date, I think. His name was in the same press release when I came up to San Francisco. There were three of us in that press release, I think. Henry Colen, myself, and a fellow named Gale Hansen were all brought in at the same time.

Henry had worked with San Luis Mining Company and I had known him in Mexico. He had worked for me there. He was a very enterprising go-getter and was, of course, very interested in Latin America. He had left Mexico when we worked for San Luis and gone to work in Gilman, Colorado, which had just as many disadvantages as Tayoltita did. Eventually they went back to Mexico, and Henry worked in Monterrey for many years, and got into the phosphate business there.

At any rate, he was interested in getting Homestake into Latin America. Paul Henshaw was not averse to that. He had worked in Peru as well as Mexico. So they joined an exploration syndicate of about eight or ten companies that had put money together to do exploration in the Andes Mountains in Peru. They had investigated a number of properties, and they finally got this one, Madrigal,

that turned out pretty fair. It was a copper-lead-zinc deposit with a little silver in it.

It turned out well enough that we finally sent Ted Rizzi down there. Ted Rizzi had been a Homestake geologist in Lead and was the head geologist for years at Homestake-Sapin Partners. Then he had been sent out to Missouri to oversee the Missouri drilling that was going on there. I'll get into that in a moment. From that he went back to Lead, and then they sent him down to Madrigal to verify the ore reserves there.

Madrigal was located in a pretty remote area itself.

Chall: In Peru?

Swent: Yes. It was, oh, I don't know--something on the order of 100 miles north of a city named Arequipa, just off the Colca River.

They decided to go ahead and build a 500-ton-a-day mill on it and go into production. They negotiated a loan agreement. At this time Homestake was going to put the money up to develop it. At the time there was a military government in Peru, and the sentiment was pretty much against foreign mineral investments. One of the causes of the military takeover had been the attitude of British Petroleum.

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The land from which they produced oil was called Talara and had originally had a land grant from the King of Spain. They didn't get it themselves, but they had succeeded to it. The terms of the grant provided that there was no taxation of this property. The company kept insisting that they weren't to be taxed, and the governments kept saying, you've got to pay some taxes on the oil production. Instead of being realistic about it the company stayed with their legal position. Eventually the military government stepped in and the land was expropriated. The military government passed a number of other laws on mineral projects in Peru. So we had to get a special contract under the current law to develop this project, which we did. We got one of two contracts that were issued.

The military government took over in 1968. The new president was a military general named Velasco who was quite leftist-leaning. As far as government was concerned, things just got worse under Velasco for years.

Well, let me go back a little way. This Madrigal venture all began back in 1967. At that time Homestake had planned to finance

the development of the mine and construction of the mill, on a loan basis. They would loan the money to the company that we set up in Peru and then would recover the money from them on a loan basis with interest. But in 1967 there was a big financial crunch in the United States. President Johnson recommended to Congress a law that was passed, prohibiting the exportation of capital from the United States. So we couldn't do this.

To finance it Henry Colen went to the Japanese and dealt with a Japanese trading company called Marubeni, one of the major trading companies, but probably the smallest of the five majors. A very, very large enterprise. And they lent--I've forgotten--$7 or $8 million to the project so that we could finish it and get it going. The quid pro quo was that we signed a five-year agreement to ship concentrates to Toho Zinc Company in Japan, and sell the concentrates to them. Whenever Toho Zinc was to make a payment, they would deduct a percentage for a payment on the loan, and then pay it to Marubeni.

Well, when Paul became president he decided that I should have charge of this. He wanted Henry to go on with exploration projects rather than go into operations. So I took that over, the operation at Madrigal.[1]

Lead, Zinc Venture in Missouri

Swent: In addition, beginning in 1966 or thereabouts, Paul Henshaw when he was exploration geologist, had obtained a land position in Missouri, in a new lead-zinc area discovered there, a tremendous area. The lands that he acquired were adjacent to and intermingled with lands that were owned by Amax, Inc.[2] Amax had done a lot of drilling on their own land and had found nothing--nothing of significance, anyway. Their management had gotten discouraged and said, well, we're not going to appropriate any more money for exploration here. But the exploration people thought it still had potential, so they came to Homestake. Paul then made an arrangement with them which was formalized where the lands were put together as one package. Amax had spent $400,000 or $500,000 in drilling. If Homestake spent an equivalent amount of money on

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[1]Details of the Madrigal operation are in Chapter X, pages 776-841.

[2]Amax, Inc., was the company that emerged from the merger of American Metals Company and Climax Molybdenum Company. [L.S.]

drilling, on these combined properties, then we would own them fifty-fifty.

So they did this. That was when they took Ted Rizzi away from me in Grants and sent him down to Missouri to oversee this drilling. And they found a tremendous ore body. A world-class lead-zinc ore body, absolutely one of the top-grade ore bodies in the world.

Chall: What happened to Amax? Did they really have it there and couldn't find it?

Swent: Yes. So they formed an operating company. It was sort of like a partnership, and Amax was to be the operator. They had decided to go in, sink shafts and develop a mine, and build a 3,000-ton-a-day mill, and a lead smelter--not a zinc smelter, just a lead smelter. Big, big enterprise. In 1970 Paul asked me to represent Homestake interests there. Amax was the operator, but I was to be the Homestake representative. They had a joint operating committee that met once a year. There were three people from Homestake usually on it, and I was on that committee. So I was getting widespread. I had the iron ore interest in Australia, the Peruvian thing, the partnership in Grants, North Alice in Utah, the lead-zinc in Missouri, and Port Costa. Eventually I had the Spearfish lumber mill too.

Chall: Gosh!

Nickel Venture in Australia

Swent: In addition, somewhere around 1970, they still were doing exploration work in Australia. They had an active exploration group there with Union Oil, Homestake, and Hanna. It was the same, 25/25 percent each, between Homestake and Hanna, and 50 percent for Union. Union was doing the exploration work. Homestake had been doing it, and they got into a jam when one of the geologists they found was buying stock in properties on which they were drilling. The Union people got quite incensed at this and said Homestake shouldn't be running it. That guy got fired, of course. Union took over the exploration.

Anyway, they found a nickel deposit way up in the Laverton area of Western Australia, about, oh, four or five miles south of where an Australian company named Poseidon Limited had found a big nickel deposit. Now Western Mining Company was already in the nickel business in a big way in Australia, and they had gotten so

far ahead into it that they were building a smelter. They didn't have it completed. The Poseidon deposit was normally called the Windaara deposit, and the Homestake one was called the South Windaara deposit. The Homestake mine was capable of being open-pitted. The Poseidon had to be mined underground. But neither seemed to be able to stand on its own feet.

So the Poseidon met down in Los Angeles finally, with Union, Hanna, and Homestake, and they worked out a joint venture in which they were going to put these two properties together and see if they could operate, build a mill, and mine them together and make money. Poseidon had made some big commitments on equipment for power plant, for milling, for mill equipment, and was sinking shafts or inclines and developing underground, but not at a big pace for lack of funds. All that Homestake, Hanna and Union had done was just drilling on South Windaara. We had not tried to open a mine yet.

So when we entered into that agreement around 1970, why, Paul turned that one over to me also.

Decision to Sell the Clay Products Company, 1970

Swent: After Paul became president we were still having all these problems at Port Costa. Ray Brown came in and took a look at the costs and balance sheets and loan agreements and everything, which he hadn't seen before he was hired, and he came to the conclusion that it was going to be very, very difficult to turn it around. He suggested that we go into the lightweight block business, that there was a big business coming in making concrete block out of lightweight aggregate.

He located a fellow down in Albuquerque who had headed up a very successful operation of this sort down there, and he wanted to bring him up and put him in charge of this. They brought him up and introduced him to everyone. I made some inquiries around Albuquerque about him and found out that he had some personal background that really wasn't very good. So I told Paul about this and he nixed the deal; he wouldn't go on it. Paul is very conservative. Eventually Paul decided, well, we've got to sell Port Costa.

I had recommended to the board of directors from the time that John had first appointed me--after I attended the first board meeting of Homestake they asked me about Port Costa and I said, in essence, "You ought to sell it. It's just something Homestake

shouldn't be in." I had made an attempt to sell it. I worked a little bit with an outfit called Granite Rock Company that was headed by a fellow named Bruce Woolpert. But he said he just couldn't see a way how to buy it from us. Probably I was asking too high a price. I think he would have bought it at the price for which we finally sold it.

But Bruce Woolpert did try to become our marketing agent. He agreed to become our marketing agent because Granite Rock Company sold a lot of regular aggregate, and they said they had the contacts and the marketing experience, that they were competing against Kaiser fairly successfully, and that they could add the lightweight aggregate to their line. So we tried this for a while, but it wasn't very successful.

Then Paul decided to put Dick Stoehr in charge of selling it. Now this is Dick's forte. Dick was very good at these types of business negotiations. We decided to reorganize the Port Costa board and try to alienate the business a little bit from Homestake, get it away from the corporate umbrella, so to speak, because of the liability of the bank loan. We brought in some outside directors on the board, so that they weren't all just Homestake people. We got a lot more serious about this and then began making noises to the bank--and Dick handled this--that the loan was not guaranteed by Homestake. If Port Costa went belly-up, why, the bank had to look to the assets of Port Costa for their loan.

The real reason for this was to try to get the bank to extend the terms. One of the reasons the business couldn't make money was that the repayment terms were pretty stiff. They were using up all the cash. The bank wouldn't agree, so this was to get them in the mood to do it. Finally Dick did work a deal with Rhodes and Jamison. Part of the deal was that the bank would extend the bank loan. Rhodes and Jamison bought it for a ridiculously small amount. This was somewhere towards the end of 1970.

Towards the end, as these things were going on, Paul had wanted me to be running it, and Dick to try to be selling it. We got to where we were getting in each other's way. Dick wanted the business dressed up to look like what he was describing to the people to whom he was trying to sell it. I wasn't up-to-date--day-to-day--on these things. So finally I told Paul that I thought it was very difficult for the two of us to be working like this, and that whoever was trying to sell it ought to be running it. So he turned it over to Dick. The last few months before they sold it Dick was running it with Ray Brown on the job. The sale provided for them to take Ray Brown on.

At any rate, that was good riddance. We were very glad to get out of that business.

Chall: What did that experience tell you in terms of, oh, let's say Homestake the company for one thing, and just general business in another?

Swent: Well, in general it taught me what I had learned in Grants, and that is that you ought to stick to the business that you know. This was the problem that Phillips and Kerr-McGee had had in Grants. They got into a business they didn't know and they had to pay to learn. We did the same thing with Port Costa.

Chall: I see. Did the people in central office, at headquarters, understand this?

Swent: Well, yes, but the people who had been principals in the organization had retired. The original purchase was really pushed by a director who was at the time treasurer of the company, Bob Mulvaney. Bob Mulvaney had been a stockbroker in San Francisco and was a friend of John Gustafson's. John had brought him in as treasurer and put him on the board. When this deal came along, Bob thought it was wonderful. He pushed it and he got the financing from the bank and all this sort of thing, including John Gustafson's approval. Bob was the real mover. He knew long before he retired that it was a failure. He was always shaking his head over it and realized he had made a mistake, but he had retired before we sold it.

A Short Course in Computers

Swent: Then I made a lot of miscellaneous trips in 1970, all over the country--even back as far as 1966. Homestake had decided to buy a computer and put it in Lead. It was an IBM computer. One of the services that IBM gave was a week's schooling to all of the officers that the company wanted to have trained. Not necessarily how to operate the computer, but just in how to take advantage of a computer, what it can do, this sort of thing. So I went to a week's course with IBM in San Jose in December of 1966 which was very interesting. I had taken a short course in computers down in Tucson several years before when I was in Grants. I had decided I had better start learning how these were used. We had actually tried a little computer work in Grants, with the University of New Mexico on a research basis, so I had some background in it. This course was very interesting.

Visiting the Enterprise in Peru

Swent: At the end of 1970, I made my first trip down to Peru. The person that we had in charge of the property down there was a fellow named Arthur Beynon. I had known Art; he had been up in the San Francisco office. He was part of John's original central staff. He had had a lot of Latin American experience. He had worked in Peru and Colombia a good many years, and also in the Philippines. He was an experienced mining engineer, a good operator. He and I got along fine. He was very relieved that he wasn't going to work under Henry Colen. He and Henry didn't get along at all. Henry, he said, was a promoter and wasn't a practical operator. We both had lots of common operating and we got along very well.

So I went down and spent a week or so there. After that I went down once every three months. In June of 1971, Lee went with me on a vacation trip. We also took our daughter Jeannette and son Richard. All told we spent six weeks on the trip with about a week devoted to going to Madrigal. We started in Panama, where the husband of one of Lee's Wellesley College classmates was just finishing a tour of duty as U.S. Army Lieutenant Governor of the Canal Zone.

Then we went to San Jose in Costa Rica, where we were guests of Abe and Viola Pena, a sheep ranching family we had known in Grants, and head of AID [Agency for International Development] for the U.S. in Costa Rica.

We did an extensive stay in Bogota, visiting the family of a Colombian girl who was staying with us in Piedmont. In addition to Madrigal, we went to Lima, Arequipa, Cuzco, Macchu Pichu, Puno, Lake Titicaca, La Paz, Santiago, and Arica. We visited the Toquepala and Cuajone mines as guests of Leonard De Jong, formerly a metallurgist for Homestake-Sapin Partners.

Chall: You had to get started knowing all of these operations you were responsible for?

Visiting the Enterprise in Australia

Swent: Well, when I went to Australia I went in connection with both the iron ore and the nickel. I went down in mid-October of 1971. I took Lee with me, because it promised to be a long trip.

Chall: This was Australia?

Swent: Yes. We went first to Sydney, continuing on to Perth, where we had our headquarters. A group of us from Hanna, Homestake, and Poseidon met there with the Western Australian state government representatives. We had to have what they called a "state agreement" to operate the property. This was a very complex instrument that set forth all the infrastructure that we would be required to put in, what facilities such as roads, water rights, et cetera, the state would provide, this sort of thing.

The thing that impressed me most occurred when we walked into the Western Australian government offices. We went to the industrial development office, and in the receptionist's office they had some 8 1/2 x 11 maps sitting on the desk for people to pick up, showing the state of Australia with Texas imposed on it, and showing how much bigger Western Australia is as a state than Texas. It is a tremendous state. Of course, the relations between the states in Australia are quite different than they are here. They're much more autonomous than in the United States.

At any rate, after that we returned to Adelaide. There we spent quite a little time negotiating with Poseidon and going over a bunch of details and drafting final documents. The entire venture had not yet been formally closed; legally, the documents had not been signed. We had an attorney from San Francisco, Joe McKinley, who was there also. We had lots of phone calls back and forth to San Francisco. We had meetings between Union, Hanna, and Homestake, and then we had meetings between Union, Hanna, Homestake, and Poseidon.

Finally, after about ten days or two weeks, we signed the agreement, and it became effective.

We had to go to Melbourne to close a related financing agreement with the ANZ Bank. That took two days, then I flew out to Perth.

The Mines at South and North Windaara

Swent: From there we went to South Windaara and to Windaara, and saw what there was to see. There wasn't a great deal to see. South Windaara was just a drilled-out thing. There had been no excavation or anything. So all there were were drill hole sites, but we could see the topography. On the Poseidon-Windaara (at that time they called it North Windaara) deposit they had started an underground mine and had a shaft sunk and were beginning to do development work, so we saw that. Basically they had approached it

with a big decline, but were also going to sink a vertical production shaft. That was still in preparation, so we went underground through the decline.

Their living facilities were just mostly temporary trailers. They hadn't yet built any housing. Eventually they chose to build most of their housing in a town called Laverton, which was about twenty-five miles away. We went and visited Laverton because that was part of the proposed agreement with the state that we had discussed.

Chall: To provide housing?

Swent: Yes, and to build it in Laverton. So we looked at that. That was basically an aborigine town. There were whites there also. It was not on any aborigine territory or anything like this, it was just inhabited by them. But the Western Australian government wanted the development of housing and infrastructure to be there, because it was an existing town and would be easier in many ways.

One of the things that's of interest there: there's a little gold mine right outside of it that was shut down, called the Lancefield Gold Mine. We drove by it and had a look at it; it's an underground mine.

Chall: That was being mined?

Swent: No, it was shut down. About a hundred miles to the south was the mine called the Sons of Gwalia, which was the one that Herbert Hoover had been in charge of and mined a good many years ago. At any rate, then we flew back from Windaara to Kalgoorlie that same day, staying overnight in Kalgoorlie.

There I visited the old Lakeview and Star mill and Fimiston shaft that Poseidon had. Then I flew back to Perth and Adelaide.

Then I went back to Perth and went up to the iron ore mine. While I went to Windaara, Lee took a bus trip between Sydney and Melbourne. We met again in Adelaide. [checks his calendar] Well, I guess we went to Geraldton first, from Perth, and saw the iron-ore-loading facilities there at the port. Then the manager from Koolanooka came down and met us, a fellow named Pat Gray, and drove us up to Morowa. We stayed in a little country hotel there, and had real language problems. We went into the dining room to order dinner, and I didn't know what the arrangement was at the hotel, whether the meals were included in the room rate or not. So I

tried to ask the waitress, and she couldn't understand a word I said. [chuckles]

Chall: Or vice versa! [chuckles]

Swent: Or vice versa. We could read the menu; we could read it all right.

Chall: You had to write it down.

Swent: No, well, I finally went to the main desk and talked to the manager, who spoke both our English and Australian English!

[Date of Interview: May 6, 1988] ##

I'm not clear whether or not we finished the trip to Australia.

Chall: No, I don't think we finished it, because you were discussing one trip that I think Lee took by herself in some neighboring city, and then I'm not sure just where you went from there together.

Swent: All right. Let's see, that would have been October, I think, of '71. It was sort of a joint trip to try to close up the deal with Poseidon where we were going to become partners. Union, Hanna, and Homestake were going to become partners with Poseidon Limited and put our two nickel properties together. So I had to spend quite a bit of time in Adelaide. We went to Perth with Poseidon people to meet with the Western Australia government people. And I think I mentioned that.

Chall: Yes, you did.

Swent: Okay. Then we came back to Adelaide and had a lot of sessions there. We had our general counsel, Joseph McKinley, present also, because he had to approve the legal documents. There were several days in Adelaide.

One night Lee and I wanted to have seafood for dinner, so we went to the Adelaide waterfront and found a little restaurant with several types of fresh fish laid out on ice on a counter. We went in and took seats at a table. When the waitress came I asked her the name of one of the fish laid out on the counter. She didn't answer, just turned and fled, but in a few moments came back with the manager. It turned out she didn't understand American English!

Then over one weekend we went up and visited an open pit copper mine called Burra Burra that was a subsidiary of Poseidon's. They were producing copper from a rather unusual deposit. It was

an oxide deposit, which are usually very hard to treat. They had a special circuit, and a rather ingenious flow sheet, one of the few in the world for producing copper from oxide ore that way. Their product was mainly sold for use in making certain paints. It was a rather interesting trip. We were out in the boondocks there.

Chall: Did it seem more primitive even than Tayoltita?

Swent: No, not really. But the life was sort of Victorian style, very subdued. For Australia it probably wasn't too isolated; it gets more isolated in the outback. But they were fairly isolated. It's one-hundred-and-some-odd miles down to Adelaide. The manager was a fellow named Harry Green. We got him up on Sunday morning and he took us around through the plant.

Anyway, then we went back to Adelaide. After we finished up the business in Adelaide we went to Melbourne to close a financing agreement with the ANZ Bank. I then flew out to Perth and on by chartered plane to Windaara and Kalgoorlie, then back to Perth and Adelaide for more meetings on the Poseidon business. Lee took a bus trip from Sydney to Melbourne, then flew back to Adelaide. Then Lee and I flew out to Perth. That was the end of the Poseidon business. We had signed the agreements, and they had to be sent back to San Francisco for corporate approval. But everything was closed, basically, at that point.

The Port at Geraldton

Swent: We flew to Geraldton after visiting in Perth. Geraldton is a port on the Indian Ocean north of Perth, and it's the port that the iron ore venture was using for shipping its iron ore up to Japan. So we went there and were met by Pat Gray, of Western Mining Corporation, who was the manager of the iron ore venture on the Koolanooka mine. That was located just outside of a town called Morawa. We met him in Geraldton, and he took us through the loading facilities that they built there to load the ore onto two ships that the Japanese had built especially for this particular traffic. There didn't happen to be one in port at the time, but you could see how all the equipment worked when they would load it.

Chall: How did they load it?

Swent: Well, they had a conveyer belt system, and it was loaded in bulk. The ore came out over a conveyer belt that was moveable along the wharf. It came out at right angles to the dock. It was on tracks,

and it would move up and down the dock and pour the ore into the hold of the ship.

Chall: What was the ore like at that point?

Swent: It was just crude ore. It was crushed, maybe to four or five inches, I think was the size. There was a limited amount of fines. The sales contract restricted the amount of fines. The fines were a problem in blast furnaces. They would blow out and not reduce, so they wanted the ore in lumps; they didn't want any great percentage of fines. Actually we had to screen the ore back at the mine before shipping it down to Geraldton.

Chall: What would you then do with the fines, or what would they do?

Swent: Well, they stockpiled them. Then at the end of the life of the mine they finally negotiated a sale of the fines for a lower price. It was not part of the original contract. But we had accumulated a tremendous stockpile of fines by then.

Chall: Yes, I would think so. It certainly would have some use, wouldn't it?

The Mines at Koolanooka

Swent: Oh yes, it had good values as far as the iron content was concerned. From Geraldton we drove up to the Koolanooka mine. It's 125 miles inland. They had built a special rail line between the two. The Australian state railroad ran trains back and forth--just trains to haul the ore; there were no passenger trains.

The ore itself was a magnetite ore. Magnetite, as its name implies, is magnetic. It's a highly desirable form of iron oxide. It's FE304, basically, and it's the easiest of the iron ores to smelt and make iron out of. It requires less heat and it usually has a higher percentage of iron in it than the other ores do. This was quite desirable.

One of the things that I looked at at that time and subsequently was when the open pit was finished, out beneath it and a little away, was a banded deposit of magnetite that had pieces of white quartz, bands of white quartz between bands of the magnetite. So it wasn't direct shipping ore. This open pit ore that we were shipping was an ore that was massive. It was all together, and you could just mine it and ship it; you didn't have to do any concentrating. But the extension below ground level would need

metallurgical treatment and would need a very substantial investment. They figured at that time something like $200 million to bring it into production. We fumbled around for several years with that, trying to see if we could develop a market that would return the investment on the $200 million. But Western Mining never could get a satisfactory sales contract.

In the meantime there had been tremendous hematite discoveries made north of Koolanooka. Kaiser was in one of those. It was in a place called Mt. Tom Price that they named after Tom Price, who was a Piedmont resident here and was involved in finding and developing the mine. Mt. Newman was another one of the big projects up there. They had millions and millions of tons of hematite ore.

Chall: What's hematite?

Swent: Hematite is also an iron oxide, but it's not magnetic and has less iron in it than magnetite. In blast smelting it takes more heat to reduce to iron than does magnetite. The tonnages were so great, however, that they were able to get favorable contracts with the Japanese. They went through the same things that Koolanooka had gone through. They got their own port, called Port Hedlund, and would ship by train down there. They built special ships to transport it.

Chall: But Homestake wasn't involved in that?

Swent: We were not, no. But this was the competition. All that was in place and the infrastructure was built. About the time we came along we were interested in getting a contract that would justify a $200 million investment. The Japanese had now contracted for all the iron ore they could use for many years, so they didn't need any more, and weren't interested in committing to a $200 million project.

Chall: When did your open pit project come to an end?

Swent: I'm not quite sure when the last shipment was made. They started in 1966 with a seven-year mining plan, and would have ended somewhere in the mid-seventies, maybe '73 or so, somewhere along in there.

Chall: Oh, I see.

Swent: They were getting towards the end of it when I visited there the first time. I made a second visit a year later and things had changed drastically just in that one year. They were getting so close to the end of the deposit that they were running everything with an eye to the closedown.

Chall: What do they do when they close down an open pit mine like that?

Swent: Well, in Australia they just sold off the equipment that they had there and sold off the houses that they'd built. They managed finally to sell off the fines. That was about all there was to it. Actually the open pit wasn't very far below the level of the ground. It had been a mountain, actually, that was mined down and leveled off. There was still part of the mountain left that hadn't run, didn't have magnetite in it. And it had come down to the basic ground level, which was almost sea level. It was pretty flat from there on out to the coast. Below that, as I say, the silica had not been leached out.

Chall: Did that end Homestake's interest in Australia?

Swent: No, no. We still have an interest there. We still have an exploration office going on down there. A venture came up later--we got into a gold venture that we're involved in now.

At any rate, then Pat Gray drove us back from Morawa down to Perth again. I visited the Perth offices of Western Mining Corporation. Their home offices were in Melbourne, but they had a big office in Perth.

Chall: You spent quite a bit of time in Australia, didn't you?

Swent: Oh yes, the trip was well over a month as I remember. Then Lee and I flew back from Perth to Sydney. We had arranged to fly to Auckland in New Zealand and to have a day and a half in New Zealand. So we took a tour of Auckland. The New Zealanders pronounce it almost like "Oakland." It's quite frequently confused with Oakland, California.

We were very short on time by then, and we flew down to Rotorua and saw the hot springs and geysers and some of the aborigine villages there. Of course, that's the town that's completely heated by underground steam, or steam that's derived from underground. We couldn't get a flight so we took a bus back to Auckland. That was a very interesting drive, through lots of green country; we saw lots of sheep. The next day we took off from Auckland and flew to Hawaii and then on to San Francisco and came home.

Selling the Nickel Venture

Chall: Now, in your nickel venture, was that nickel also going to Japan?

Swent: Well, basically that was one of the problems with the project: getting a market. We entered into it without a market firmed up. It was basically an agreement where we could earn our interest; the Union, Hanna, Homestake group could earn an interest. We put up South Windaara as part of our payment.

Poseidon had spent a great deal of money buying equipment, and driving their decline, and calculated that in order for Union, Hanna, and Homestake as a group to be fifty-fifty with Poseidon, that we still had to invest some money. A lot of equipment was still on order; it hadn't arrived and hadn't been paid for. As equipment arrived we would pay for it out of the Union, Hanna, and Homestake funds until we got up to a certain amount. I forget how much it was. It was quite a bit of money, several million dollars. Then we would be fifty-fifty partners in the venture.

Market was a tremendous problem. The first thing that they had to do was metallurgical test work to see what sort of a concentrating plant or mill would be built, how you would design it in order to produce a product. Secondly you had to know--this is common knowledge, that there is a market for nickel--what the contaminants would be that you would have to watch out for and remove from the nickel concentrate.

Western Mining Corporation had gotten into the nickel business very heavily. They had been the first ones to get into it, and they achieved enough success, got enough mines, that they decided to build their own smelter. For a while previously, they sold the concentrates to the Japanese and they had a good lucrative contract with the Japanese. But they finally decided to build their own smelter and we thought perhaps--well, first of all we had hopes that our deposits would be big enough to sustain a smelter, too. But that soon turned out to be incorrect and we couldn't justify a smelter.

Amax had a deposit at a place called Agnew over there that was not far away. We thought maybe we could combine with them in the smelter. We had some talks with Amax over that. But in the long run they decided their deposit wasn't big enough to develop and they gave it up and never did develop it completely.

So then we decided, well, maybe we could have it processed by Western Mining at their smelter. They were basically very difficult to deal with over the thing. On a subsequent trip I visited one of their mines. We visited the smelter which was being constructed and were quite impressed with it.

We had a representative that we left over there on a day-to-day basis to watch our interests in Poseidon. His name was Orville

Anderson, a Canadian mining engineer, a very pleasant, capable individual. He knew his mining very well. He had been with Homestake previously up in Canada when Homestake was involved in the potash venture with U.S. Borax. We eventually sold out of it, but while we were in it, Andy (as we called him) was our watchdog on the job. So we now put him on the Poseidon job as our watchdog there, to watch the expenditures. He was not an accountant. We had an accounting person in a fellow named Peter Proctor, who had done the accounting for the iron ore venture also. Anyway, Andy was to watch the progress of their decline and their shaft and part of the plant testing and all phases of the work that was being done on a day-to-day basis.

Chall: In the meantime did you have a market?

Swent: No, no market. Well, you knew you could always sell it, but it was a question of price. The price was depressed. There had been a lot of discoveries of nickel. The Western Mining empire had grown pretty big. They had an influence on the price. Up until then, International Nickel had really had a monopoly on the nickel world market, and they set the price. And they still did, but they had to be more realistic in setting the price because they had competition. There was also nickel from New Caledonia, which was a better grade and it was a different type of deposit. That was in competition. And nickel was suddenly being discovered in much greater quantities and developed in much greater quantities than before. So the price came down.

This was one of the things that made it very difficult to stay in the venture. Eventually we got out because it wasn't economical. Probably after less than two years of the Poseidon, Union, Hanna, Homestake venture, we opted out of it and sold it back, in a way. We sold it back to Poseidon for Poseidon stock. We tried to sell our interest to Western Mining, and Western Mining wouldn't buy it. So we sold it back to Poseidon for stock. Then Poseidon eventually wound up making a deal with Western Mining that enabled Poseidon to operate their mill, and develop the open pit in South Windaara. On a subsequent visit I went over there and saw the open pit as well as the mill.

But the price of nickel was so depressed that they weren't making any money, and eventually Poseidon got so low on cash they couldn't afford to operate the mill any more, so Western Mining took it over and operated it for a while. Finally they shut it down.

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Chall: Homestake lost money on it, I assume.

Swent: Yes, the stock that we got out of it declined in value. We were able to sell it, but it didn't have the value that it had at the time that we acquired it. That was a loss proposition.

Just to follow through on what happened to the mill--in later years when I was vice president of engineering, I had a very capable metallurgist working for me named Douglas Halbe. He had worked for us up in Michigan on a copper venture that Homestake was in for a while. That didn't pan out either. We had built a 500-ton pilot plant up there and Doug operated it. That was where I first met him. Then he came down and worked for us, located in Denver, and set up a metallurgical group in Denver that we used for checking out new ventures and solving metallurgical problems that arose in operations when the operating crew, or the operating metallurgist didn't have time to get into them.

At any rate, after about three years in this, Doug decided he wanted some foreign experience, and he started looking around for a job. He got a job with Western Mining Corporation to go to Laverton. Western Mining opened up the Lancefield Mine, with the increase in the price of gold that had taken place. Doug's job was to convert the Windaara mill which had processed nickel to a mill to recover gold. I guess he spent about three years in Laverton. He's now back in the U.S. I haven't seen him since, but he's living in Salt Lake City. I'm not sure whether the mill is still operating. I think the Lancefield Mine had a limited life.

The Unsuccessful Gold Mill Tailings Venture in Australia, 1973

Swent: On a subsequent trip--well, about 1973 we sort of fell in with a fellow named Tom Cook in Perth who had a company whose name I don't remember. But they had acquired rights to several gold mill tailings piles in Australia. The first one was down near Bendigo, which is in New South Wales. They had engaged a very well known Australian metallurgist named Arthur Keats, a quite capable metallurgist. He advised them to build what was called a carbon in pulp plant.

Solving Metallurgical Problems in Gold Recovery: The Carbon In Pulp Process

Swent: The only carbon in pulp plant in the world was in Lead. It was a process that Homestake had developed, along with the Bureau of

Mines, to solve a problem in Lead. The problem that came up in Lead was that a great deal of the Homestake recovery was through amalgamation. The early circuit there had been there since 1953. After grinding in the ball mills, the ore was discharged over amalgam plates, which recovered a great deal. They were just plates with copper covered with mercury. The coarse, free gold in the ore would amalgamate out. Then what was still bound up in the rock went on for regrinding and was separated into sand and slime fraction. The slime fraction was treated with cyanide and so was the sand fraction, but in different types of equipment.

Well, the EPA came along and said we could no longer use mercury amalgamation, because some of it was carried out into tailings and the tailings were going down the Gold Run Creek and were being discharged, eventually got into the Cheyenne River and then eventually down into the Missouri River and eventually into the Mississippi River, although I don't think the mercury went that far. But the tailings certainly went as far as the Cheyenne River. They could detect mercury in the fish in the Cheyenne River. So they came out with an order that Homestake had to quit using mercury. When we did that, of course, this put an additional load for gold recovery on the sand and the slime plants. They just didn't have the capacity, so in order not to lose too much gold, they had to cut tonnage back for a while.

So they cast around for developing another method that would increase capacity. The method they came up with is what they called the carbon in pulp method. Normally, in a leaching process that's used in a counter-current decantation plant--like, for instance, the one that was at Tayoltita in Mexico--after grinding into a pulp, the ore went through a series of agitation tanks where air was blown into the pulp and they had rakes stirring it around to get the oxygen. You need oxygen for the cyanide to do its dissolving work. The slurry would flow from one tank to another until you had enough contact time. The cyanide solution would flow the other way. After each tank you would separate the liquid and solids. The solids would go one way and the liquids would go another way. The liquid would work its way upstream and the solids would work their way downstream. This was called counter-current decantation.

Well, the carbon in pulp used the same principle. You introduced the carbon, and the carbon that you used was ground-up coconut shells and things like that that had been burned or charred. It was very hard. It needed to be hard to resist the abrasion that it would take in these tanks, in the agitation. And it had to be what is known as activated charcoal. This was accomplished by heating it. Then it had the faculty of attracting gold out of the cyanide solution. The gold would hold on to the

carbon. So then the carbon would go counter-current. It would work its way up the agitators, and the solids containing gold would go down this line of agitators.

Then, at the head of the circuit, at the top of the line, the carbon was screened out and then washed with a hot caustic sodium hydroxide wash with some cyanide in it. And that would get the gold off the carbon. This solution that had the gold, which was very concentrated solution and very small in volume, was then put through what we called an electro-winning circuit, electro-plating. What was finally developed as the best cathode was steel wool. You would suspend a batch of steel wool attached to an electrical line that gave it a charge. The gold would plate out on the steel wool --and the silver, and some other metals, too--would plate out on the steel wool. Then the steel wool would be periodically removed from the tank and then a new batch put in. The batch that was gold-laden was then taken to the furnace rooms and melted down. Flux was added, to flux off the iron and carbon and other impurities that were in it.

The carbon itself, after the caustic soda leach got taken off of it, was then capable of being used over again, but had to be reactivated. You did this by running it through a little rotary kiln and firing it up, heating it up to the proper temperature to reactivate it. And it went back into the circuit and was used over again.

Chall: My word! How did you get all that coconut shell? Did you buy that from Hawaii?

Swent: I'm not sure where they buy it from.

Chall: That's a lot of coconuts! [Laughter] Or shells.

Swent: Well, for a while, for several years, Lead was the only place that had this. This was a new metallurgical process. In the days of the increased price of gold now, this has been a tremendous development. Because a carbon in pulp plant can be built for fairly low capital cost. They're being built all over the West now in connection with low-grade deposits, where they can't afford to build a full-blown cyanide plant and where they want to do what they call heap leaching.

Now heap leaching was something else that came out of the copper and the uranium industry. Heap leaching is a very low capital cost thing, just as carbon in pulp recovery is a very low capital cost. And those two things made it possible to develop mines of small tonnage that otherwise would not have been mined,

because the capital cost would be too high. Dozens of mines are springing up now in the West with these features.

Research Assistance from the Bureau of Mines

Chall: I find it fascinating when you've described these various chemical processes for getting minerals out, through mines and mills. How do these develop? Where, for example, would an idea for carbon in pulp, or heap leaching, some of these new methods, come from? Do they come from university laboratories, or do they come from metallurgists trying everything? You know, coconut--who would think of that? I mean, I wouldn't think about a coconut shell.

Swent: Well, specifically in this case--this had been worked on, on and off for many years, by the Bureau of Mines.

Chall: I see.

Swent: The Bureau of Mines does a lot of research work to try to solve metallurgical as well as mining problems. They had done quite a bit of work on this but never tried to apply it. Homestake went to them and said, in essence, "Well, we'd like to try this, and we'll work with you. We'll let you put your equipment into our plant and we'll work with you trying to make it work and trying to come up with an operating scheme." The technical idea of using carbon was fairly old. This was pretty well known.

Carbon absorbs materials very readily. What they call activated charcoal or carbon has a tremendous quality for absorbing all kinds of things. It can absorb gasses. For instance, in Mexico if you have a lot of gas in your stomach they'll give you carbon pills to absorb it. And it works! I've taken them. It's used commercially and has been used for many years for absorbing gasses in certain processes.

Then the search became for, how can you get a type of carbon--lots of carbon is soft. Lots of carbonaceous materials are soft. How can you get one that will stand the beating that it's going to take in a metallurgical process? They came up with the coconut shell business. There may be others developed by now, but that was the original one.

Chall: So the Bureau of Mines really has been important in the mining industry.

Swent: Oh, yes. Well anyway, to go back to the Australian situation, Arthur Keats had told Tom Cook and his company that to treat these tailings they should use a carbon in pulp plant. He said all you would have to do is hydraulic the tails down and wash them, and pump them to a carbon in pulp plant. They came to Homestake and said, in essence, "We need your know-how from the carbon in pulp plant." At that point we were the only ones that had it. "In return we'll offer you an interest in these other tailings plants. We've already started on this one, so this first one we can't let you in on. But we've got the other ones out there."

The tailings piles that they'd tied up, among others, were the Laverton tailings pile from the Lancefield Mine and the Sons of Gwalia. So they offered us an interest in those. They had obtained from the state government the rights to re-mine those or re-process them. They wanted to try out their first plant and see how it would work, and then take the money that they would make from that and put it into developing plants in these others.

So I went over with Joe McKinley on a trip to inspect these tailings piles and see how they'd sampled them. They'd already sampled them, and they gave us the plans showing the samples. But we wanted to check it out, to see that the sampling had been adequate and properly done. Particularly the Laverton--Laverton was the next one that they were going to do. So we visited the Lancefield tailings piles, spent a couple of days there, and went up and visited the Windaara mill, which was by then operating on nickel, then came back. I guess that was in early '74.

They started up their plant at Bendigo and had a terrible time with it, terrible time. They called for help, so we sent Frank Howell over to see what the problems were. One of the things that he came up with was that they had designed it without a laboratory. The whole thing had been laid out to just be operated.

Chall: No testing?

Swent: There was no facility for analyzing results at each stage of the process. So they were sending off samples to, I don't know, Sydney or Melbourne or someplace at a distance, to try to control it. Well, by the time they got the samples sent down there and the results came back, the condition to which they applied was changed. So they just weren't able to control the operation.

In addition they had some settling problems. There was too much slime in the material. The process in Lead is used only on sands. As I mentioned earlier, we separate sand and slime, and we treated the slime in a separate process. At first we used the process only on sands, but later we were able to shut the slime

plant down and put the slimes into the CIP plant (that's carbon in pulp). But it's a little tricky.

Anyway, they had a lot of sliming problems, of material that wouldn't filter right. Eventually they gave it up. The price of gold went down and so eventually they gave it up. They lost enough money on it that they weren't interested in pursuing things any further.

So Homestake's interest, really, that they had offered us, wasn't of any value. They eventually gave up the rights to the tailings piles. Nobody else has come in to treat them yet. The values are still there, but the price of gold has not been as high as it was then. The price of gold now is probably as high as it was then, but you've had thirteen years of inflation since then, so the costs are up to the point where at this price of gold, it probably wouldn't be worth tackling.

Chall: I see. But the tailings just stay where they were, and someday somebody will use them if the price is right?

Swent: Yes, perhaps so.

Chall: Does anybody own it? I mean, somebody still must own this.

Swent: Well, no, they're under the state. Their system is different over there. The state has the right to give a permit to mine. It might be on a bid basis, although when Tom Cook got them he didn't have to bid. There was no competition; he was the only one that wanted them.

Chall: That's interesting. Mining is certainly is a touch-and-go situation, when you have no positive assurances of the future.

Swent: Yes. Well, not all mining ventures are successes.

A Successful Gold Mining Venture in Australia: Kalgoorlie Associates, 1978

Chall: I'll say not. It doesn't look as if Australia was of great value, except for the iron ore.

Swent: Yes, the iron ore was profitable. And the later deal--this was made in 1975, with Western Mining--was much more profitable. Western Mining had always continued a small gold operation in Kalgoorlie. Actually, Poseidon also originally did own a shut-down

gold mine up there, the Fimiston mine. They also had the Lakeview and Star mill, and the mine.

Originally they had planned to send their nickel ore down from Windaara and treat it in this old gold mill. So part of what I did on my first trip there was to go through this mill. It was a shambles. At any rate, eventually when Western Mining and Poseidon got together on the nickel deal they also got together on their gold properties. Their properties were close together. The gold property that Poseidon had had been shut down. But Western Mining took it over and took over the mill.

The mine that Western Mining was mining was called the Mt. Charlotte Mine. The one that Poseidon had was called the Fimiston Mine. Anyway, Western Mining had trouble in their gold division of making much money on this. They were making money, but the price of gold hadn't yet gotten high enough to be extremely profitable. They were mining pretty low-grade ore.

The new combination of the Poseidon and Western Mining gold ventures was called Kalgoorlie Lakeview Proprietary, Ltd. They had put it in a separate little corporation. Under Australian corporate practices, you pay out your profits in dividends. Then if you want capital you have to go get the capital from the stockholders or borrow it. So they did not have capital. They wanted to re-build the mill and to sink a new shaft to rehabilitate the Fimiston shaft, and lots of things. They needed capital for this.

So they approached Homestake. Henry Colen, who was with Homestake at that time, did the negotiations on this and eventually negotiated a 48 percent interest for Homestake in the venture. The first agreement Henry negotiated was for Homestake to pay $8 million for 5 million shares (47 percent) of Kalgoorlie Lakeview Pty., Ltd., stock. This agreement was not approved by the Homestake board, so Henry negotiated a new agreement that provided for the formation of a partnership between Homestake Gold (a subsidiary of Homestake) and Kalgoorlie Lakeview Pty., Ltd., to be called Kalgoorlie Mining Associates. Homestake Gold was to have a 48 percent interest and committed to supply a minimum of $3 million and a maximum of $8 million of any funds required by the new partnership. This agreement became effective in April, 1976. Actually, this was one that turned out the other way around. This was a very, very profitable venture. The price of gold went up dramatically, and the venture made enough money after Homestake got its interest in it that there was no need for Homestake to put in all of this capital. The venture generated its own capital and Homestake just reinvested what it got out of it and didn't have to put up any new money. It has been very, very good ever since.

Chall: Is that so? It's still good?

Swent: It's still good. In fact, it's so good that Homestake just sold 20 percent of its stock in Homestake Gold to the public about six or eight months ago, and made $95 million on that. So they gave up a little bit of their ownership there and went into making money by selling stock. But that one has turned out very, very well.

To get back to where we were in Australia--Joe McKinley and I went over. The time when we looked at the tailings piles we also got wound up with Hill 50. You know, the Australians are great beer drinkers, tremendous beer drinkers. And every day in Perth and Adelaide, it was our experience that once the office closed, everybody went down to the nearest pub and had four or five beers before they went home. And we were in one of these pubs in Perth after having some sessions with Western Mining, and they introduced us to some fellow there. I don't remember his name, but he was with a company that owned a mine called Hill 50 Gold Mine up in Western Australia. Hill 50 was a very famous mine there. When he learned who we were he was very interested in having us go visit the property, so we decided we would. We went up on his invitation after a few days and spent a couple of days looking over Hill 50. I thought it looked like a fairly good prospect for rehabilitation with the new price of gold, so we recommended it. Then Homestake sent some geologists over and we did a lot of negotiating. Eventually nothing came of it, and I don't think Hill 50 ever did get back into operation. They had shut it down. It was on a caretaker basis.

Combining Sightseeing and Business, 1972, 1974

Australia

Swent: On this early 1974 trip in Australia, Andy Anderson, who was still working for us, and I took advantage of my being there to go visit some of the other iron ore mines. We visited Mt. Goldsworthy and Mt. Tom Price. I took the weekend and flew up to Alice Springs and went out to Ayers Rock, climbed Ayers Rock.

Chall: What rock is that?

Swent: Ayers. It's a big monolithic sandstone rock that sticks up out of the outback. The territory around it is very flat and this big red rock that sticks up out of it is very spectacular. There are a lot

of little caves at the base of it and the aborigines used to live in there. Alice Springs is right in the center of the aborigine country. It's almost an aborigine town in itself. But Ayers Rock is one of the big tourist attractions in mid-Australia.

Then I flew up to Darwin and did sightseeing there and flew down the coast. I met Andy at Port Hedlund. Then he and I went and visited the Mt. Goldsworthy and Mt. Tom Price iron mines and also their concentrating plants. They had pellet-making facilities to treat their fines. That was the way they disposed of their fines, they made pellets from them. And we went through the pellet plants as well as through the mines themselves. These were tremendously large mines, producing many, many thousands of tons per day. Had long-term lives, you know, twenty- and thirty-year lives or more.

The investment in infrastructure and in housing was just tremendous. Actually, they had done a marvelous job. Of course, this is country that's very arid, not much rainfall, very dry. So they had to conserve water all the time. They had air conditioning for the houses because it got very hot in the summertime, 110 degrees Fahrenheit, that sort of stuff. And they had developed toilets that didn't use water; they were air-suction type toilets.

Chall: When was this?

Swent: I think that was '74. Well, I should go back a ways, I guess, as long as I'm on the whole Australian kick here. In 1972 I had made a trip over there. I wound up in Perth and when I was all finished, I had decided to fly over to South Africa. When you're in Perth you're halfway around the world from San Francisco. There's no difference in the air fare to go back to San Francisco the way you came or to go on flying west and go around the world. So I decided I would go to South Africa and then come back from South Africa to South America and then up to the United States.

South Africa

Swent: Western Mining at that time was getting into the uranium business. They had developed a uranium deposit up in Western Australia called Yeelerie, with open pit potential. Low grade, but it was a tremendous amount of uranium. They even talked with us and made some arrangements to try to send some of it by ship to Los Angeles. Then we would take it by land over to Grants and test mill it in Grants for them. They wanted to get some uranium experience on

their staff, so we had agreed to take on one of their metallurgists for six months in Grants.

At any rate, they were getting into the uranium business and they had a new president. Their old president had retired and they had a new man named Arvi Parbo. I wanted to meet him because we were doing a lot of business with Western Mining and I thought I should know him. I tried to meet him when I was out there, but his schedule was such that I couldn't make contact with him. So I was going to leave Perth and fly to Johannesburg.

I called one of the Western Mining people who had invited me to dinner the night before. We had had a very nice time. I called him at his office from the airport just to say goodbye and to thank him for the dinner. I hadn't told him before where I was going, but when I said, "I'm about to take a plane to Johannesburg," he said, "Oh, you're going to the same meeting as Arvi." I said, "Well, no, but is Arvi going to Johannesburg?" "Yes." "Well fine, can I arrange to meet him there?" "Why sure," he said. He told me Arvi would be staying at the Tower Hotel. That's where I had my reservations. "Well great, we'll arrange to get together." He said, "Fine, I'll tell Arvi. He's going over tomorrow."

So I got to Johannesburg, and I had letters of introduction to the South African Chamber of Mines and to some of the gold mines, particularly the Anglo-American Corporation. I presented those the first day and then started making arrangements for visiting gold mines. That evening I looked up Arvi Parbo in the hotel, and we had a very good talk. We discussed all the various phases of the business that involved Homestake and Western Mining.

The International Uranium Cartel

Swent: Then of course we got into the uranium business, and it turned out that he was at a meeting of an international cartel that was in essence fixing prices on uranium. There were no United States members--well, there were, I guess; I didn't know for sure. I guess Gulf Oil attended or was involved anyway, but we [Homestake] certainly weren't. But we had heard about some of this. There had been previous meetings and some publicity.

So I was very interested and I pumped him as much as I could as to what was going on, what sort of prices they were setting. I met him the next morning when I was going out, waiting to be picked up to go to a gold mine. We talked a little more and I got some ideas of the prices.

So I sat down that night and wrote a handwritten memorandum to Dick Stoehr in San Francisco, telling him what I'd learned. I thought he'd be very interested in this, because he was in the uranium market, too.

Chall: That was a major leak.

Swent: Yes. Well, I didn't see Arvi after that. I think the meeting was over with. I saw a Hanna person there in the hotel also, but he wasn't there on uranium, he was there on other business.

Touring Mines in South Africa: Training the Miners

Swent: I had a very nice time visiting South African mines. It was a very eye-opening experience. The conditions aren't that way now, but this was '72. They were still acclimatizing workers. The mines are very hot. They're down, 11,000 feet deep, and they were working in hot conditions. At that time they were cooling the air on the surface and blowing it down through the mines. They were just at about the limit of that type of cooling. As the air goes down it gains heat again and picks up moisture. By the time it was getting to the working places it was still pretty hot and humid, but it was probably less hot and humid than it would have been without the ventilation.

But they did acclimatize their workers. And I wanted to see how they did this. They had these great big, just sheds in essence, built with metal sheeting maybe 100 feet long, 50 feet wide. In it they had two rows of steps built facing each other, there were just three steps, I think. They would line up the blacks that they were acclimatizing on these steps and have them step up and down in unison. They had a big red light that flashed on and off, and they were supposed to do their stepping up and down in time with that. The humidity in the building was controlled at a high level and each step was adjustable with a little wooden board so that it was adjusted to the man's weight. And as each man stepped up he was doing the same number of foot pounds of work as the man next to him. They were all doing the same amount of work in essence. They would get about ninety to a hundred men in there and put them through this for two or three hours--

Chall: Oh, my--.

Swent: --taking a rest every half-hour. And they would check each man to see if there was any sign of heat fatigue or anything. They would feel the man's neck and that sort of thing. If they felt anything

unusual then they would take his temperature. It was very well controlled, but they had to do this for two or three hours a day for two weeks to get acclimatized before they could go underground.

Chall: Oh, I see. These were new workers?

Swent: Well, it was new workers or people, say, who had been on vacation or out of the mine for more than two weeks. They had to go back through the acclimatizing.

Then they did their training. In addition to doing the acclimatizing they also did training. And they had marvelous facilities for training, more than I've ever seen anywhere else. They had rail lines laid out and places for men to learn to operate locomotives. They would run the locomotives around; they had mucking machines (in essence little front end loaders), the pneumatically-operated front end loaders that operated on rails. They had cars and piles of rock so they could practice loading. I've never seen facilities like these in the States. Over here you just learn by doing it in the mine. They had concrete-built imitation stopes where the men learned how to put in cribbed supports. It was really a very, very thorough and complete training facility.

Now, not every man that came from Malawi, say, and had never been in a mine got to run a locomotive. They had to learn to do manual labor before they could run a locomotive. But the first thing they had to do was learn to communicate. They had a mine language there that they developed because they were getting blacks from all over Africa and tribes that spoke different languages. There was a language problem so they developed a very brief imperative language called Fanakalo. Somewhere I've got a little book on it.

Chall: Mining Esperanto?

Swent: In essence. But it was all imperatives. They made everybody learn this language. There were only about 1,000 words in it. As I say, all it had was imperatives: "Get the shovel," or "Shovel this." "This is a shovel." I attended one of those classes where they were teaching Fanakalo. The instructor would say something and then the man would go get a broom and present it, or whatever had been named in the sentence.

Anyway, this is the first thing they do, and the acclimatization. Then they learn to do shoveling, and that's the main work that they start in on, just shoveling ore. Then, after they get experience in the mine if they're good workers and they want to get into one of these advanced jobs of running a locomotive

or running a drill, then they apply for training in that. Then they come back up to surface and go through that particular training school. Probably most of them that take more than two weeks would have to go back through the acclimatization.

Cooling the Workplace in the Mines

Swent: Since 1972 they've developed a new method of cooling, and they no longer acclimatize their people. They manage to keep the mines cool enough so that they don't have to.

We adopted the new method of cooling in Lead. We have heat problems in Lead also. This method is called chilled surface water cooling. You chill the surface water that is used in the mine down as low as you can, generally in the high thirties or low forties (in Fahrenheit degrees), and pipe it around through insulated pipe to the areas where you're going to work.

There are a number of methods that can be used for cooling the local working place. You can spray the cold water in the air. Generally speaking that water is so cold that it doesn't add to the humidity in the air. Actually it condenses moisture out of the air. It cools the air off so that moisture condenses out of the air, because there's a lot of humidity in the air at that point. Or you can use it in your drills. It keeps the drills cool and it goes into the rock and cools the rock before it's broken. And the rock before it's broken is at its hottest.

When you spray it, the water falls down on the rock that's broken and cools the broken rock. Generally most of these stopes have an inclination to them, so that the water runs down and collects at the bottom. You pump it out of there and pump it back to some central sump where all the sand and rock that is gathered is allowed to settle out. Then it's pumped through the chiller again and cooled and re-used.

We adopted that system in Lead in the late 1970s. In fact, we had a fellow come over from South Africa. We had done some test work with it, and he checked our test work to see whether it was feasible to put the entire lower mine on it. It turned out to be feasible. He went over to the University of Minnesota and gave a week's course on mine cooling there to the mining students. Several of us went over there and attended the course. It was very interesting.

The point is they no longer have to do the acclimatizing, this new method is so successful.

Chall: Imagine that. To go down to 11,000 feet and be successful is remarkable.

Swent: Yes. But I think they still use the Fanakalo. And all this other training probably still goes on.

I also visited the Premier Diamond Mine, just a few miles out of Pretoria. That was a fascinating experience also. They don't have the heat problems there. Their problems there are security. That was an interesting sideline.

Chall: How deep down do they go?

Swent: Oh, just a few hundred feet.

Chall: I see. Pretty near the surface.

Swent: Yes. I had a weekend available so I flew up to Kruger National Park and spent the weekend on a little tour through the park and saw the wild animals, zebras, giraffes, elephants, lions, and all sorts of springbok, all sorts of wild animals. I got lots of good movies of them, and I had a lot of fun. We had a real outspoken Afrikaaner as our guide. There was great contrast between his attitude and the attitude of the people in the mining business there on the whole apartheid and black situation. It was very interesting.

Basically the mining people were much in favor of being allowed to do more with the black labor than they were allowed to do. They wanted them to be able to work up into managerial positions. Not necessarily top-level positions, but at least supervisory positions and this sort of thing. But they were limited in that by the union agreement. There's a white miners' union, what they call the White Miners. They really aren't miners, they are supervisory people. But there are thousands of them that do all the supervision. They banded together in the white miners' union. In the union agreement they limited the jobs that the blacks can work up to. They could only rise up to a certain level. As I say, the management people, who are mostly of British descent, were not happy with this. They didn't like the whole system.

This Afrikaaner that was our guide was very outspoken. He was of course the other way around. So right there I could glimpse the problems as they stand today. I don't think they've changed. They're a little more intense now.

After I finished in South Africa I took a flight to Rio de Janeiro and spent a couple of days there. Then I took a flight across South America, went through Lima, didn't stop. Then on up to Los Angeles and San Francisco.

Chall: All that wonderful traveling.

Swent: That was the '72 trip. Then on the '74 trip when we had done the work on these tailings piles and all this sort of stuff and I visited the iron ore mines with Andy Anderson, I had a tremendous number of flights and planes. I figured out once I'd done twenty-three flights in twenty-one days as part of that trip. And on the way back I went to Singapore for a few days, then up to Bangkok and visited a couple of Lee's ex-students. They were very nice to me and I saw quite a bit of the Bangkok area with them.

Then I flew back via Hong Kong, but didn't stay in Hong Kong, just went through the airport. I went up to Tokyo and I did have a 24-hour layover in Tokyo between planes. Then back to San Francisco. When I got back my ears were plugged.

Chall: I'll bet!

Six-Month Leave of Absence: Vasculitis, 1974

Swent: I thought it was from all of this up and down flying, so I went to Dr. Kohlmoos with these ears. He's an ear specialist, and I'd been to him before. He tried to blow out my tubes by blowing compressed air up the nose. That didn't work, so then he took a fine needle and punctured the eardrum and pulled some fluid out from behind the eardrum and said, well, that should get better.

Well, it didn't get better, things got worse. Finally after a couple of visits he said, in essence, "You've got something else. You've got an infection, you've got a fever. You'd better see another doctor. That fluid that's generating in your ear is absolutely sterile; it can't be causing you a fever." This was the end of May and I went to our family doctor, Dr. Lamb. Eventually he put me in the hospital. It turned out to be a very serious illness.

Chall: Really? What did you have? Has it got a name?

Swent: The eventual diagnosis by Dr. Lamb after ten or twelve days of hospitalization and tests, including a kidney biopsy, was diffuse vasculitis with collagen tissue disease and glomerulonephritis,

which was essentially kidney deterioration caused by the vasculitis. Vasculitis is a disorder of the vascular system or the blood distribution vessels, and the kidneys are masses of blood vessels. Collagen is tissue right under your skin. When you have collagen tissue disease it tends to move into joints and create joint pains. And I was having these.

In fact, I didn't realize it, but when I looked back on it I had had symptoms of this for months. The first was in August 1973 when I came back to Chicago from Scotland. I had gone to the doctors for some of these pains and they had not been able to diagnose anything from them. Once I thought I was having a heart attack, and the doctor met me in the hospital emergency room and gave me an EKG and couldn't find anything wrong. Finally, after a few hours the pain in the chest went away. That happened two or three times.

Once I realized it was a serious illness, I let Paul Henshaw know. He called on me at home and told me I was relieved of all my duties and that he was reassigning them to other people.

At any rate, now that they had a diagnosis they put me on high doses of prednisone, which gave me almost instant relief. I was out of the hospital in two days. In early July Lee, Jeannette and I went to Lead for a few days. But after about three or four weeks I got some recurrence and swelling of the left leg. I had a continuing ache in the right calf. So Lee and I decided that maybe I should be looked at by a specialist. Vasculitis is what they call an immune system disease. We thought it should be looked at by a specialist in that. Dr. Lamb recommended Dr. Halsted Holman at the Stanford University Hospital. So he referred me down there and I was there for three weeks. I came out very weak. The Stanford Hospital doctors questioned the vasculitis diagnosis; they said they couldn't find any evidence of it. But it could be that the prednisone had already taken the symptoms away. They didn't say it hadn't occurred, they just said they couldn't find any evidence of it. But I was quite weak and my kidneys were damaged. I was very determined to recover and get back to work. And I learned a very valuable lesson here, and that is that if you have a serious illness and you want to recover, one of the big helps is to have the determination that you're going to recover. So I was very cooperative with the doctors and did everything that they wanted.

Just before I was discharged from the Stanford Hospital they had me on a water deprivation test and deprived me of water for about thirty-six hours while they did some testing of the kidneys. So when I was discharged, the doctors told me to drink as much fluid as I could and to double the amount that I drank every day for a week. I kept a record of this and I did it. It was

terrible, I was about afloat at the end of the week, but I did it. Then I went back, had another appointment with the doctors, and gave them my water drinking record. They were amazed. They hadn't expected me to do it! I remember one of them went off into the other room talking to the other one and he exclaimed, "He did it! He did it!" [laughter]

Chall: Then you were dry for thirty-six hours. That must have been difficult.

Swent: Yes. Once I got my strength back, why, I was off work. I dropped all pretense of working. Paul Henshaw had assigned all my duties to other people. So Lee and I took a three-week trip to Hawaii in August and September.

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Off to Hawaii to See the Kilauea Volcano, 1975[1]

Swent: [I had planned to go back to work about the first of the year 1975. But in late December of 1974, a few weeks after we had gotten back from our Hawaiian vacation, there was a new eruption of Kilauea volcano on the island of Hawaii, and I was interested in going back to see it. Lee wasn't interested, having had her fill of seeing volcanoes with me in 1952 when we went to Paricutin in Mexico. Our younger son Richard, age 22, was interested so we made hurried reservations to fly to Hilo on January 2, 1975, and to spend a few days there and return after about a week.

In Hilo it was raining steadily. The word was that the eruption of Kilauea had subsided and there was no new lava activity at the moment. We saw ads for four-wheel drive jeeps for rent, so we decided to rent one and drive to the top of Mauna Kea. We started up shortly after noon. By the time we had climbed to about 7,000 feet or so we came out of the clouds and rain into brilliant sunlight and the rest of the trip to the top (21,000 feet). The last few miles of the road are in snow country and the road was graveled or dirt, and only four-wheel drive vehicles were allowed on this part. There were some people skiing at the summit. There was a large telescope on the peak also but there was no provision for casual tourists like us to see it. The view was brilliant sunlight reflected off the layer of white clouds below us that surrounded the peak and stretched as far as we could see on all sides.

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[1]The following paragraphs were added by Mr. Swent.

We drove back to Hilo late that afternoon, turned in the jeep and rented a car, then drove on out to the Volcano House, right on the edge of the Kilauea crater. The next day we drove around the National Park trying to find where the recent lava flows had taken place. The nearest we could find was about a mile and a half from a road, so we hiked through the drizzle over older lava flows until we found the new one, now well solidified but warm enough to be steaming in the rain.

That evening we drove over to the west side of the island, where we got out of the rain, and stayed in Kailua. The next day we went snorkeling in a nearby spot that I had found and liked in December.

On Monday we drove around the west side of the island sightseeing, then drove back to Hilo and flew back to San Francisco.

Returning to the Office

Swent: On Tuesday, January 7, I went back to work in the San Francisco office, after having been off since the last few days of May. I found that Joe McKinley had resigned as general counsel and Bill Langston had been recruited for the job and had already reported in. He had been assigned to use my office temporarily until his was ready. We worked out our problem quickly and I continued to use my old office.

When I first reported back to work I was off of prednisone, but was taking other medicine for my kidneys and high blood pressure. My body, especially my face, was very swollen and puffy from the long period on prednisone, and I had difficulty concentrating well, but as time went on this became better. I had been quite weak when I got out of the hospital at Stanford, and was unable to walk more than a quarter of a block at home. I gradually built this up, walking ten or twenty paces more each day, and gradually trying to run a few paces a day, and finally building up to running significant stretches. By the time I went back to work I felt that I was in good physical shape again, but knew that I had permanent kidney damage.]

Anyway I was off work for seven months. In the meantime, even before this happened to me, Paul Henshaw had called in a group of management consultants named F. R. Schwab and Associates and wanted to get advice on how to reorganize, or how to organize the administrative work.

Chall: The whole operation of headquarters?

Swent: Yes, the whole company structure.

Vice President of Engineering, 1975-1981 ##

Swent: Before I got sick he had asked me what position I would be interested in having in the new structure. I said, in essence, "Well, I'd prefer to wait until I see their recommendations to see what they're going to do." When I got sick their report wasn't in yet. It did come in while I was sick, and what they recommended was a divisional organization. They recommended setting up an exploration division, an international division, a uranium division, a gold division, a base metals division, and an engineering division.

When I got back I knew that I had to have a job with less stress. I had thought maybe the vasculitis had been brought on by stress, but I'm not really sure of that. But I felt I was kind of getting burned out and I wanted something with less stress, so they made me vice president of engineering.

Chall: What did that entail?

Swent: Well, it was kind of vague. Like the division managers, I had to make the job. In their management report they didn't have very much about it except that the job was to do the engineering planning for new operations and to supervise the engineering performance at the different operations.

Chall: All over the world still? I mean, Peru and--

Swent: Yes, but just from the engineering aspects.

Chall: Engineering in mills and in the mines?

Swent: Yes. To see that they had adequate engineering staffs and that sort of thing, not to be supervising operations, but to provide advice and help where and when needed. It included mills and metallurgy.

[The Outline of the New Administrative Structure[1]

Swent: The responsibilities of the job were outlined in the Schwab management organization report as follows:

1. Provide mine engineering and operating expertise to exploration on a consulting basis for the purpose of evaluation of potential ore bodies from a mining point of view;

2. Evaluate potential acquisitions of mines and other operating facilities from an engineering and operating point of view;

3. Develop and administer an engineering service system or organization under which corporate-wide engineering capability is coordinated with and engineering services are made available to all divisions through the optimum balance of 1) temporary interdivision assignments, 2) outside engineering consulting services, and 3) corporate engineering services;

4. Monitor division engineering and operating capabilities and performance, and advise divisional management and the president on the company's engineering and operating capability on a continuing basis;

5. Plan, coordinate, and manage as required corporate environmental protection activities;

6. Coordinate, at the corporate level, the company's mine health and safety programs; and

7. Monitor the political, social, and legal environment as this affects 1) mine safety and health, and 2) environmental issues.

At first there was some talk of also giving me management of Homestake Forest Products, the lumbering and sawmilling operation in Spearfish, South Dakota, but this finally was placed in the Base Metals Division, so my engineering function remained entirely a staff function.

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[1]The following paragraphs were added by Mr. Swent.

When I got back to work I found the divisional organization being put into effect. James A. Anderson had been recruited to be manager of exploration, and had come to work in December. This job included all the exploration work in the company except for uranium, and was headquartered in San Francisco.

The Gold Division was being organized, with Don Delicate as the manager, headquartered in Lead. This division included the Homestake gold mine in Lead and the Bulldog silver mine in Creede, Colorado.

The uranium, base metals, and international divisions and the engineering function were not yet set up. In addition, the position of vice president of industrial relations and personnel had been established, and Richard R. Hinkel recruited from General Electric for that position. He reported in but was unable to work for a few months because his wife was dying of cancer.

Each division was to be a profit center and a separate budget. Engineering was to have its own budget, but would not be a profit center because it would have no income. The San Francisco office group (except for the division managers working out of that office) was set up as a separate profit center also, because it had a great deal of interest and dividend income from the investment of corporate funds.

Some First Tasks

Swent: I started my work by resuming some of my prior non-operating responsibilities. Paul Henshaw wanted me to continue to be in on meetings with United Nuclear because of my knowledge of the uranium business and of the history of relations between them and Homestake. I also resumed my work with the American Mining Congress and worked on several of their committees, including the Noncoal Mine Safety Committee, the Occupational Health Committee, the Uranium Policy Council, and the Uranium Environmental Subcommittee. Within a few days of going back to work I made a trip to Washington, D.C., to attend the AMC annual meeting, and some committee meetings scheduled with it. A couple of weeks later I went to Albuquerque and Grants to attend a Homestake-United Nuclear meeting.

Paul Henshaw and Dick Stoehr and I had some more discussions of my becoming the manager of the Uranium Division, but I still didn't feel up to tackling a high stress job, so Paul gave the job to Dick Stoehr and I started organizing the engineering job.

During the year Henry Colen was made a vice president and manager of the International Division. This included the Australian operations (but not exploration) and the Peruvian operations at Madrigal (but not the Latin American exploration). All the foreign exploration went into the Exploration Division. There was one hitch in setting up the International Division which I will go into a little later.

Harry M. Conger was recruited to come to work as the manager of the Base Metals Division. This included Homestake's interest in the partnership with Amax in a lead-zinc mine and mill near Buick, Missouri, and in a lead smelter at Boss, Missouri, as well as Homestake's 100 percent interest in a venture in copper near Calumet, Michigan, and the Homestake Forest Products Company, for lack of a better place. In November of 1975 Jim Anderson and Harry Conger were made vice presidents. This basically completed the top staffing for the new divisionalized company organization.][1]

For a short time, however, I continued my operational responsibilities at Madrigal. Henry Colen was put in charge of the International Division. He was the person that had originally been in charge of the negotiations on Madrigal and had worked that project up to the point where it was ready to go into operation. We had sent a mining engineer whom John Gustafson had on his staff named Arthur Beynon down to Peru. He had had Latin American experience before. He had worked in Bolivia, Colombia, and Peru. So he was a natural for that as manager. He had started designing a mill and developing the mine when Paul Henshaw put it under me in 1970. But he'd had a period of working under Henry Colen. When this divisional set-up came about he told me, in essence, "I won't work for Henry Colen. If they put Henry Colen in charge of me you can get another manager." So I passed that on to Paul.

There were reasons for this. Henry is an enthusiastic type and his psychology didn't fit Art. Art was a very good operator but not the emotional type at all. Henry used to try to use emotion a lot to motivate people. He had worked for me down at Tayoltita at one time, so I had known him for a long time. We're good friends, and Art and Henry are good friends. But Art said, in essence, "I just can't work under Henry." Paul didn't know quite what to do here, so I volunteered that I would handle Madrigal until he got that sorted out, and Paul accepted. This lasted for about a year. At the end of 1975 Henry Colen hired a replacement manager for Art named John Schissler and then it went under Henry, and Art left Peru and came back to San Francisco and worked under me.

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[1]End of added paragraphs.

Chall: This was while you were vice president of engineering?
Swent: Yes.

Chall: I see.

Swent: So I did have an operational responsibility for a while there, for about a year. Then once the new manager was installed and Art had come back up to the states, why, I dropped that one.

By then things had changed a great deal in Peru. The military government was out and they had promised free elections, new elections. They had tossed out the real radical, General Velasco, who was president for many years, and put in a more moderate general, General Bermudez, who was much more conservative and got things turned around to where they could have an election. I'm not sure whether we're any better off there with freedom and a democratic government, or not. We are better off than when Peru was under the initial military government. It was very leftist. I'll go into that when I go through the Madrigal experience. I think that will be another story.[1]

[Organizing the Engineering Division[2]

Swent: To get started with the Engineering Division work, I began a series of trips to the various operations to become acquainted with the engineering personnel at each operation and to assess their abilities and needs. These trips were worked in around the other trips I was making to meetings with United Nuclear and to American Mining Congress committee meetings, so it took several months to get them all done.

The Unsuccessful Michigan Copper Project

Swent: One of the places I visited in September 1975, when making my rounds, was the Michigan copper project. The Keweenaw peninsula of Michigan has for several centuries produced native copper ore with a unique silver content, the local Indians having mined it as long ago as 3000 B.C. As a result of its unusual silver content, copper

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[1]See Chapter X, pages 776-841.

[2]The following paragraphs were added by Mr. Swent.

from this area has been identified in ancient Indian artifacts in the American southwest. One famous ore-producing property in modern times was the Centennial mine of Calumet and Hecla, Inc., near Calumet, Michigan. In 1968 Universal Oil Products acquired Calumet and Hecla by merger, and continued to operate for a while. Calumet and Hecla had ventured into the Grants, New Mexico uranium fields back in 1956 and developed a moderately sized mine there, and in 1957 both Homestake partnerships signed custom ore agreements with them, taking their entire production for the Homestake mills as custom ore.

In Michigan Universal Oil Products ran into severe labor problems with their local section of the United Steelworkers union. There was a long and bitter strike that was never resolved. In 1969, after eight months of strike, UOP announced it was permanently closing the operations, even though there were some minable reserves left. The reason was that if the operation were not permanently closed, U.S. labor law would require any successor operator that bought or leased this operable property to recognize the union that was certified as the bargaining agent for the property, and the UOP people thought that they would not be able to lease or sell the property to anyone else under this condition. A purchaser or lessor of the property where operations had permanently ceased would not have to recognize the old union. Cessation of the operations meant that they had to liquidate, demolish or remove all the improvements they had made on the property, such as mill, shops, smelter, et cetera. They did this, but left the main inclined shaft open and the headframe in place.

Henry Colen thought that this property was a good exploration target because it had been actively mined up to the day of the strike, had some minable ore left in it and had geological potential to find more ore. He finally negotiated an agreement for Homestake to have an option to acquire the property after a period of exploration and testing work.

Orville Anderson was placed in charge of the property. During the long shutdown the mines had flooded. He began dewatering the Centennial mine by bailing with the ore skips. These were watertight. One would be lowered by the hoist until it sank in the water and filled, then it would be hoisted and dumped on surface, where the water ran to a holding pond for clarification. A double drum hoist and two skips, in balance, were used. The shaft and ore body were inclined at an angle just flat enough that broken rock would not run down the footwall by itself, about 38 degrees.

The main bottom level had been on the 3600 foot level (feet below the collar on the incline). The exploration program had two phases to it. One was to verify the existence of minable reserves

and the other was to deepen the shaft and drift out from it to see if there was any extension of the ore below the 3600 level.

There was one unique problem to verifying the ore reserves. The native copper occurred in a conglomerate as chunks of various sizes, from a couple of feet across, to fist size or smaller. From the chunks wires of stiff copper extended out. Drilling the rock entailed having to drill through these pieces of copper, and was always a very difficult task. Blasting the rock always left jagged pieces of copper and copper wire jutting out from the rock surface. This surface would be very rough, and one had to wear gloves to protect one's hands from being torn.

Sampling this ore was an almost impossible task. Ordinary channel samples wouldn't work because the moils usually broke the rock out and left most of the copper in place, so that the sample was not representative. The old timers who had operated the mine before roughly estimated the ore by rubbing their hands over it and judging its copper grade from the degree of roughness of the rock surface caused by the amount of copper pieces or wires projecting out.

The only good sample was a bulk sample, of several or more tons, and this had to be crushed to a small size and the copper separated from it by some mechanical means in order to weigh it. It virtually took a small processing mill to treat each bulk sample.

After a few months Homestake was satisfied that the remaining ore was enough to install a 500-ton per day crushing, grinding, and treatment plant. The treatment consisted of concentration by gravity in several jig circuits, followed by flotation cells. The very coarse pieces of copper were picked out by hand in the crushing circuit. The jigs concentrated the smaller pieces and wires, and the flotation cells concentrated the very fine copper present. The mill was called a pilot plant because one of its purposes was to determine the best way to recover the copper. The various concentrates were sold to a copper smelter and the profits from the 500 tons per day were then used to help pay the cost of the underground exploration. Orville Anderson had a metallurgist named Douglas Halbe in charge of the mill and processing when I visited there.

The job required careful public relations and labor policy so as not to antagonize the community and labor force into resurrecting the adamant union local section. The ringleaders of that group had left the area during the years of shutdown, and none attempted to come back after Homestake had started operations. Andy did an excellent job of community relations and was able to

begin and maintain the operations on a non-union basis, and he capitalized on the feeling among the local people who remembered the strike that the local section had indeed killed the goose that laid the golden egg.

In the long run the property did not work out as hoped. The copper price went down for a long time, no significant extension of the ore body was found, so the mill was shut down and exploration restricted, and the property was placed on a maintenance basis. There was no further work for Doug Halbe with the mill shut down.][1]

Establishing the Metallurgists in Golden, Colorado

Swent: Harry Conger as manager of the Base Metals Division asked me if I could use Doug. I agreed and he was transferred to me in early 1976. Over the next few years we added metallurgists under him and we established a group, basically separate from the metallurgists at each mine. The problem that we wanted to solve was that the metallurgists at each mine were pretty busy just running their plants and didn't always have time to look at new properties or the problems of new ores, and frequently didn't have time to come up with improvements or new ideas or to test them for their own properties.

So we gradually built up a staff of four very capable metallurgists and headquartered them in Golden, Colorado, in the office that Homestake had there. They were headed up, as I say, by Doug Halbe, who was a very capable young fellow, very good to work with.

Doug at first worked out of the office Homestake had in the Denver area, at Fifth and Wadsworth in Lakewood. This got to be too small as the divisions all grew. So finally they made arrangements to lease a big office out in Golden. It was bigger than the San Francisco office and had more people. So our four metallurgists went into that building. The computer center eventually went in there and still is there.

Chall: In Golden?

Swent: Yes. Although since then they've given up some of the space. They've cut back some of the activities there. They had far more space than they needed, but their space requirements had been growing so much that I guess the fellow that rented the space could be forgiven for trying to plan for the future too much.

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[1]End of added paragraphs.

Chall: You can always rent out the space, can't you?

Swent: Yes, that's what they did, rent the excess space for a while. Finally it's been sold.

Manager, Environmental Office

Swent: In mid-1976 I realized that we had to have an environmentally trained person on our San Francisco staff, so I began to look for someone to hire. I wanted someone with uranium experience because our principal environmental problems were with uranium operations. I went through all kinds of people for the environmental affairs person. One of the persons I interviewed when I was up at the Seattle advisory committee meeting was a fellow that was working for United Nuclear at Richland, Washington. We thought he was very good. He had the uranium background and radiation background and we thought he would be very helpful, particularly for the Grants operation, but he turned the job down and transferred to Albuquerque with United Nuclear. In the meantime the Grants manager down there decided he had to have a local person for environmental affairs, and he was right, absolutely right. So they hired a fellow from Union Carbide named Edward E. Kennedy, who had majored in fish biology and turned out to be very good for us. So at least they got somebody who could start controlling their problems before I got somebody hired in San Francisco.

And in Lead they did the same thing. They needed somebody locally, and this wasn't because they weren't getting leadership, but that each operation, with new regulations coming out and everything, just had to have a person. So they hired a fellow who had been in sewage treatment supervision named Fred Fox, who was quite capable and also a very nice personality, who was able to get along with the agencies. He was in place while I was still looking. I came very close to hiring a fellow from EPA who had a strong background in water regulation with EPA. But at the very last minute I kind of got cold feet on him and decided not to hire him and started looking around some more.

Chall: What kind of thing would give you cold feet, what problem?

Swent: I thought he didn't have a strong enough background in uranium. The search went on for almost two years. Two more people turned the job down after I made them job offers. One was an internal promotion affair but would mean an unwelcome move to San Francisco.

Then I got an application in the mail from a fellow named Phil Dedycker with Utah International, just a block away from us. He had been handling their uranium affairs. So I got in touch with him and we had several meetings and I began to get interested in hiring him. Then he backed off. He decided he didn't want to go to work for a corporation, that he wanted to go into consulting work. He was a little embarrassed about this, having first sent out applications to corporations. So he told me that there was another fellow on their staff that was wanting to expand and get into a better job. He gave me his name, David Crouch. Well, it turned out he had been up to interview us once before, a couple of years before, in a slightly different situation. But I had met him anyway. So I got in touch with him again, and after a few months we finally hired him, in early 1980. He was dubious in many ways about leaving Utah International, because it was a much bigger company. But he could see no advancement because the fellow he was working for, whom I also knew--Leroy Balzer--headed up their environmental department--and was young enough that it was obvious that there wasn't going to be any movement for years. So he came to us and has worked out very well. He's still with Homestake.

Chall: Good. Where did that leave you?

Swent: Well, that left me with somebody taking up some of my work. The first thing I had to do with him was to travel around to all the properties and get him acquainted with all the properties and all the problems. That took several weeks. We would go to Lead one week and then we took another few days to go to our silver mine operation in Colorado at Creed, then another week down in Grants. Then we made a trip eventually down to the Salem, Missouri, lead-zinc operation which was run by Amax, but we always thought that we had to know what was going on there. So we went down there to get acquainted with their problems, and they were pretty major, because of the lead smelter. It had many lead exposures and problems, that is, to the public. Now, we had to draw a line between occupational exposure and the public. Dave was to do all the environmental work. As far as the lead emissions went, he was on the public side.

Paul Henshaw retired as president and became chairman of the board and CEO in mid-1977. Harry Conger became president. In late 1978 Harry became the chief executive officer, and Paul continued as chairman of the board and a director. So after Harry became the CEO he asked me in early 1979 to draw up an organization plan of my engineering function and how I thought it should work, which I did. What I wanted was a manager of engineering, a manager of metallurgy, a manager of environmental affairs, and a manager for health and safety. I planned to have four managers under me.

We worked on this plan for a while, and Harry finally okayed it and said, in essence, "Well, now you go out and hire these people." Of the four managers in the plan, only the manager of metallurgy, Doug Halbe, was on the job. But by then I was well into the search for an environmental person, and as I've already mentioned, eventually we did hire a fellow from a block away, David Crouch.

Manager, Occupational Health and Safety ##

Swent: At any rate, I was also trying to get a safety and health man. This was quite difficult. Mostly the people that wanted the job were ex-MSHA employees or ex-MESA employees, government employees, and rightly so. Many of them were quite capable. But I couldn't really find one that I thought could take the entire corporate responsibility in this field, and that I could get along with. But one day, out of the blue, I got an application from a fellow named Harold Barnes working for TVA in Chattanooga, Tennessee. He had tremendous experience and qualifications, so much so that I thought he was overqualified and wouldn't be interested once he learned about what we wanted. But anyway, I got in touch with him and he was very interested. We eventually wound up hiring him. Then about the time that we had hired him, why, he had an accident himself. He was trying to demonstrate to his son how to ride a motorcycle [laughter] and it fell over on him and injured his back. It was quite a few months before he was able to change jobs.

Dave Crouch, who had been living and working in the Bay Area, we set up in the San Francisco office. It was my feeling that this gave the person in that job more authority and clout through the company to be right out of the home office. The way we originally offered the job to Harold for safety was the same way. He was to move to the Bay Area from Chattanooga and work out of the corporate office. We had internally, with the personnel office and everything, decided on a salary to offer him, which we did. He came out, brought his wife, and spent a week here looking for housing. The cost of housing here is a very difficult matter for employers. The problem he had was that he had a home in Chattanooga, a very nice, large home that was in a low value area. But even after selling his house he wouldn't even have enough cash to make a down payment out here! This was a serious problem, so they finally went back to Chattanooga and said they just couldn't handle it.

Then I suggested that maybe we could change the job to be located at our Denver office. This would have some advantages.

It's a lower-cost housing area there and it's more central to our operations, so that the travel would be less expensive for the company. But of course I didn't like the fact that he was away from the home office and might not have the prestige throughout the company that he should have. I told both Dave and Harold, though, that they had to earn their own prestige, I couldn't give it to them and we couldn't give it to them by fiat. We could give them some authority but they had to really earn their own acceptance with the operations based on their personalities and abilities. So Harold accepted that, and he came to work in Denver where he's still located. I then had to do the same thing with Harold as I did with Dave, go around to the various operations with him. That took several weeks. But this was at a different time; Harold came after Dave.

So we got started with that. That was about the time, when Harold Barnes came on, that I was starting on health and safety litigation with Tim Biddle, a lawyer in Washington, D.C. with a good background in this in coal mining. Harold really took right into this and was very, very helpful. In fact, Harold's main ambition at the time, he said, was eventually to go to law school himself. I think he's dropped this now.

One thing that helped convince me to hire him was that I asked him why he was interested in this job. I said, in essence, "Gee, this has got much less authority and scope than the job you have with TVA." Down there he had forty-five employees and was in charge of all the coal and uranium mine safety. (They had some uranium mines up in Wyoming.) He said that TVA had been run for years mostly like a private corporation, but that in recent years it had become more and more political and was now like a public agency. That was why he wanted to leave and get back into private industry. But in addition, he was fed up with personnel problems, and he didn't want anybody working for him! [chuckles] He just wanted to do his own work! So we thought this might be all right, if he would need a secretary.

We started in with some of the objections to citations and things of that nature in Lead, and trying to work out the problems there. The first thing I did with both of those fellows was to--well, I have to go back a ways on this. When I worked in Lead back in the early fifties the manager there had what we called a standard practice procedure manual which had in it various policies on accounting, payroll, overtime, a whole number of issues, call-out pay. When I went to Grants I set up a similar system, but there was one difference and that was the AEC contract had a non-discrimination clause in it requiring us not to discriminate against employees or applicants for various reasons, race, creed,

color, religion, et cetera. So we developed a non-discrimination policy that we put into this manual also.

The home office in San Francisco had no published policies of any sort. At some of the management meetings that I came up to after John Gustafson became president I began to say that they needed, at least for their own protection, a non-discrimination policy, a published one. John saw the wisdom of this and he had hired a new corporate treasurer, Frank Corbin. He gave him the job of developing some policies to be published on a corporate basis. So Frank began that and we'd discuss such things as travel expense, matching employee contributions, jury duty, et cetera. They did put out the non-discrimination one also.

One of the things I insisted on Harold and Dave doing was to work out policies on health and safety and on environmental affairs. Of course, these had to be approved by Harry Conger. We went through several drafts, but we finally got policies that were adopted and are still in place. It's a tremendous help to have them.

Chall: Something you can look at, refer to.

Swent: Well, in the first place, it gives guidance to all the operations as to what the company policy is. They don't have to just get it by word of mouth, they know they can rely on it. And it gives certain authority then to the environmental affairs man and to the occupational health and safety manager.

Setting Standards in the Mines

Swent: Harold got into trying to mediate the basic feud that was going on between Homestake in Lead and the Rapid City MSHA office. He was able to do a little bit to ameliorate the situation, but not a great deal. Both sides were really up in arms against each other. The first few cases that we took, we won some and lost some that we appealed. It was very interesting seeing the court arguments, watching them. I went up and observed them but basically let Harold handle them once I got him acquainted with the job.

Then the next thing was trying to upgrade the safety staffs at the different operations. Now, we had always had a good man down in Grants. John Abbiss whom I had hired from Newfoundland was excellent. He had all along been directly under the manager in Grants. But in Lead the job had been relegated usually to an ex-shift boss or somebody that could no longer be active in shift

bossing. He wasn't a safety professional, but maybe was somebody that had good relationships with people and could get along well with people. It was under the mine superintendent. Harold agreed with me that it shouldn't be under the mine superintendent, but should be under the manager and that we needed a professional safety person there.

Well, they did have one fellow who was assistant safety director, Sam Grover, that had had some professional training. Actually, he had applied to me for Harold's job but I didn't think he was qualified for it. And that posed a little bit of a diplomatic problem. Then eventually they made Sam the-- he worked up to be the safety director in Lead, but Al Winters, the manager, still left him under the mine superintendent. I've never been able to get that changed. Harold can't change that. Eventually we went and got a real professional, a fellow named Roland Wilson, who had been with MSHA and MESA, an oldtimer with them, retired. He is now the person in Lead, but he's still under the mine superintendent. I've never had the feeling-- I've told Harry Conger several times that Al Winters doesn't really have the concept of safety that Harry Conger has. Harry Conger supports safety very strongly, and he's the first president that I ever worked for that supported safety as strongly as it should be supported.

Chall: Why can't you make that change after all these years? Haven't there been new managers, I would guess, over the years?

Swent: Well, there may be. They just changed managers. Al was promoted to another job recently and has left Lead, and they have a new manager. I don't know what may happen there. Things may change.

Chall: And superintendents come and go. Is it the manager who didn't want to have this other responsibility?

Swent: Well, I don't know what Al Winters--. He just wouldn't do it.

Chall: I see. You can't order them to do it from headquarters, can you?

Swent: He could have, but we couldn't convince Harry to do it. Harry said, in essence, "Well, he needs training; we want to bring him along by persuasion rather than by direct orders, by fiat." So that's one that didn't get done, but I hope it will get done someday.

Then the next problem was the Creede operation, what we called the Bulldog Mine. This was a fairly small operation, they only had a little over a hundred employees. But they had a terrible safety record for that group. One of the problems was the stealing of highgrade. It was a very highgrade mine, and stealing of specimen

silver was quite common there. They never had a full time safety person. They'd always given the safety responsibility to one of the engineers as an additional duty, and all they did was keep the statistics. That's about all, they didn't do much more than that. This was just not satisfactory, and they had a very poor safety record.

The manager there was Tom Robertson. Tom was a very cooperative individual, and he agreed immediately when Harold wanted to bring in an ex-MSHA inspector. He agreed immediately to it, and we put him in. He did a marvelous job. He just turned that around in a matter of a few months, and they all of a sudden had an excellent safety record.

A fellow whose name was Steve Smith worked at Creede for several years. Then the Creede operation was shut down when the price of silver plunged a few years ago, it's still shut down. So they transferred him up to the McLaughlin Project. He's now the safety director and security officer for the McLaughlin Project, doing a very good job there, too. The specimen stealing problem was solved when it was found that the ringleader was the mine foreman. Once he was fired, the stealing stopped.

As I say, we had no problem in Grants. John Abbiss did finally leave. He wanted to go on into environmental affairs and get more responsibility, so he left and went to United Nuclear in Albuquerque. They had an office in Albuquerque. He's now retired. United Nuclear shut everything down and has gone out of the business, so he's retired. But they got along very well. After John left--

Digression: The Uranium Industry in Grants, 1988

Chall: Who took over?

Swent: A fellow named Red Souther. This was sort of a step backwards in principle. Red was an ex-miner, but the operation was dwindling in size and it was something that he could manage. He took a lot of good training from Harold and has handled the job satisfactorily. He just recently retired, just a few days ago. Now the operation is down to a matter of twenty people, I think. So the job was given to Ed Kennedy to add to his environmental job. I saw Ed last week and he was just busier than a cat on a tin roof. He said he was absolutely buried, because in addition to the safety work he also had the workman's compensation. Ed has been involved in the radon daughter work a great deal. He's very knowledgeable on the

radiation issues, so he's quite busy even though they only have twenty people.

Chall: How many people are working in the office at Grants?

Swent: Well, it's very few. I think they have five miners.

Chall: Are they working one mine?

Swent: Yes, they're just working one mine, one area in that mine. And they have a remnant of a contract with a utility for a small amount of uranium every year at pretty high prices, that's the only reason they're able to stay in production. So what they've done is they give these fellows a quota. They mine each month until they've produced a certain amount of uranium and then they quit and do maintenance work. Periodically they start the mill up and run the mill and then campaign the accumulated ore through it.

There is one operating mine in the district. It's run by Chevron Minerals, which is a subsidiary of the Chevron Oil Company. It's a very deep mine, originally was owned and developed by Gulf Oil Company and required hundreds of millions of dollars. I think they had 400 million dollars into it to develop it. Its shafts are something like 3,300 to 3,400 feet deep. The mine is near the base of Mt. Taylor, the volcano, and there's hot water running into it at temperatures of 127-130 degrees Fahrenheit. They have terrible heat problems and ground problems because of the depth. That's an unusual depth for a uranium mine in sedimentary formations.

Originally Gulf had planned to build a mill there, but they got scared out of the business and shut it down and then sold it. Chevron is producing ore, but they bought it on the basis of they would give it a one-year try and see if it was profitable. And it's a highgrade mine, it's a very highgrade one, fortunately. But they shipped the ore to a mill that Chevron had down in Texas, and they had quite a freight haulage bill. When Kerr-McGee was still operating they tried to work out an arrangement, and I think they had one worked out whereby they would mill the ore for Chevron on what they call a toll basis and then return the yellowcake to them. We tried to do that but we weren't competitive with Kerr-McGee because we were further away and there was a longer haul. The acid process that Kerr-McGee had gave a somewhat better recovery.

But then Kerr-McGee shut their mill down, and Chevron was shipping to Texas. Finally Homestake people within the last ten months, I think, were able to get a toll agreement with Chevron. They're now milling the ore at the Homestake mill.

Chall: It makes sense for both.

Swent: Yes, it saves them a lot of haulage and handling expense. The mill is no longer active in Texas and it gives Homestake a little income there, keeps the mill going. So it's primarily a milling operation now, not a mining and milling operation.

To get back to my organization, I had three engineers assigned to my staff. They were Art Beynon, a mining engineer, after he returned from Peru, Roger Madsen, a mechanical engineer, based in Grants, and Elmer Shields, an electrical engineer also based in Grants.

About a year after I returned to work after my illness, Elmer Shields was transferred back to the staff in Lead, where he ultimately became plant engineer.

Organization Shift: Manager of Engineering Becomes Vice President of Engineering

Swent: In 1979 I started the search for a manager of engineering along with the search for a manager of environmental affairs and a manager of occupational health and safety.

We did find one engineer that I thought was qualified and who was interested in the job. We called him to offer the job, only to find that he had died the day before from a sudden heart attack.

After that I couldn't find anyone interested. We used a headhunter firm and were able to contact a lot of engineers, but there were two principal obstacles. One was the salary level that Dick Hinkel, Harry Conger and I had decided on, and the other was responsibility or title. The level of responsibility we wanted to give the position was one that entitled the holder to be called vice president of engineering, which was my title. So most of the persons we found capable of doing the job were not interested because from both a salary and title point of view it was a sideways move for them or a step down.

So I went over all of this with Harry Conger, and the upshot was that he decided to drop that out of my organization. We would establish a separate vice president of engineering so we could attract a capable person, and I would become vice president of environmental affairs and occupational health and safety. And that's what we did. That took over a year, a year or two, to get it done. Then the metallurgists and engineers left my wing and went under the new vice president of operations.

Chall: I see. When you say it took more than a year, does that mean getting it through the president or board? When you have an idea like this, where does it go?

Swent: Well, you know, I spent maybe close to a year just looking for somebody. Then when we decided to separate the jobs, that started a new search and that took many months, I'm not sure how long. But they finally came up with an engineer named Rex Guinivere who had been with Kaiser Engineers. He was a New Zealander by birth and a very capable engineer. He came to work in the fall of 1981. By this time the engineering responsibilities were getting very heavy because the McLaughlin Project up in Napa County was coming along, and they wanted to start engineering design and plans for that. So they hired Rex just in time for it.

Chall: I see. Does the president of Homestake have the option without going beyond his own office to make changes in the personnel structure? What about the vice president?

Swent: Well, he can't name an officer; that has to be done by the board. But generally he'll take up the matter of hiring a major salaried person and of naming that person as a vice president with the board in advance and tell them what the plan is and get their consent to it. When he brings somebody in, generally the board doesn't make them vice president right away, but waits until at least the first board meeting after the person reports for work.

[The Homestake Reorganization Plan Under Harry Conger, 1981[1]

Swent: This step, however, was only a small part of the reorganization of Homestake that Harry Conger was making. He clearly recognized the serious inflation of overhead expenses that the division system had created under Paul Henshaw, and began bringing in new people and then reorganizing after he became CEO. He and Henry Colen did not agree on how the International Division was to be run, so Henry resigned in 1978 and went into a consulting business of his own. Harry changed the name of the Uranium Division to the Energy Division and brought in Kenneth Canfield from Arco in late 1978 to manage it. The "energy" part was intended to cover the possibility of Homestake going into coal mining or oil and gas exploration and production, in which Ken was experienced.

The International Division activities were placed under the Exploration Division, with Jim Anderson managing the combined divisions.

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[1]Added by Mr. Swent.

In early 1981 Harry hired William Humphrey of Newmont to be vice president of operations and the remaining divisional organizations were dismantled. At this time, Bill Humphrey took over my engineering and metallurgical duties. By then Doug Halbe had left Homestake to go to Australia to work for Western Mining at Mt. Windaara. His first job was to convert the old Poseidon nickel mill to a gold recovering mill to process ore from the Lancefield mine at Laverton, which Western had acquired and put back into operation. I was in the process of deciding on a new manager of metallurgy, but that chore became Bill Humphrey's.

The change in organization was done in what Harry himself called "typical Harry Conger style." He set up a meeting in the board room of all the officers and division managers to meet Bill Humphrey. After introducing him, Harry instructed all those personnel present who were getting new assignments to report to their new bosses for a fifteen- or twenty-minute "get acquainted" period, then reconvened the meeting. That was the end of the divisional organization.

In the new organization all operations in the U.S. (including putting the McLaughlin mine and mill into production), Peru, and Australia were under Bill Humphrey, and all exploration was under Jim Anderson. Both were given the title of executive vice president. A few months later Rex Guinivere reported in to Bill Humphrey.]

I think we pretty well worked this out. I wanted to go into the asbestos business, but that's going to be a very long one. I don't think we'd better start it right now.

Chall: Do you think we can do the asbestos and finish it next week?

Swent: Oh yes, we can finish that.

Chall: Well then we'll do asbestos.

Part B: Environmental and Occupational and Safety Responsibilities

Vice President of Environmental Affairs and Occupational Health and Safety, 1981-1983

Tailings: Solving the Serious Cyanide Problem in Lead **##**

Swent: We had a real ding-a-ling job come up in Lead, a terrible situation in a way. One of the things that the EPA had forced Homestake into

through the Clean Water Act was that we could no longer discharge our tailings into Gold Run Creek. Homestake then had built a big tailings dam, spent $14 million on it, and impounded the tailings. That was working all right, but there was still the water overflow from the processing plant into the creek. This carried some cyanide and didn't meet their specifications for discharge.

EPA now had the power to issue permits. You had to have a permit to discharge water, and the permit specified the constituents and the quantities that could be in the water. Most of these came out of their regulations that they had proposed and adopted.

Before their regulations were issued EPA did a long and involved study of mining and milling discharges into streams. The study was divided up into several parts--each on a specific type of mining and milling--such as gold mining and milling, uranium mining and milling, base metal mining and milling, et cetera. Their report set forth the recommended limits on constituents in the discharges and outlined what technologies were available to achieve the results they wanted. The study recommendations were then proposed as regulations by EPA. The Mining Congress organized committees in the different categories of mines and mills to make recommendations to EPA on their proposed regulations. Eventually all were adopted, some with changes. In general, they set standards for discharges from mines and separate standards for the associated mills--I worked on a committee that worked on the proposed standards for uranium mines and mills.

I had not gotten into the proposed regulations for cyanide mills. The Homestake staff in Lead handled that part of it. We got some modifications in the uranium end of it, but they didn't get any modifications on cyanide. The number that EPA chose was ridiculously low--0.02 parts per million of total cyanide.

So the Lead metallurgical staff had gone ahead and devised a system for destroying the cyanide in the discharge. The system was to generate ozone and then blow it through the cyanide solution.

This breaks up the hydrogen cyanide, the free cyanide, which is what's present and is the real offensive character. Cyanide is HCN, hydrogen, carbon, and nitrogen. The CN is what they call a radical in chemistry. Those two elements stay combined and form a single ion in solution. But ozone breaks it up.

Well, when they got their ozone plant installed and working on an actual plant discharge solution, this didn't work. They had more cyanide than they'd had before treatment and they couldn't understand this. So they called me and the metallurgical group in on it to try to solve this. The testing that the metallurgical staff at Lead had done in their laboratory was with solutions of sodium cyanide dissolved in tap water through which they bubbled ozone. This worked beautifully. From these experiments they calculated the amount of ozone that would be needed and ordered an industrial sized ozone generator big enough to treat the total mill discharge, up to 2,500 gallons per minute.

It turned out that what was happening was that there was a lot of iron in the discharge solution. There's a lot of iron in the solutions up there, from minerals in the ore and from grinding balls and rods, and it was forming two complex ions called ferrocyanide and ferricyanide, which are very stable ions; they will not break down. They're not toxic, but when we analyzed solutions for cyanide using the method stipulated by EPA, they were measured as total cyanide. And the EPA insisted that it be removed. This posed a completely new problem that had not been anticipated, trying to get rid of the ferrocyanide and the ferricyanide. There was no known way. They're very stable compounds. I went to a lot of chemists and we got lots of advice. I engaged a consultant who just worked on nothing else.

Chall: And EPA had no suggestions on how to do this?

Swent: No.

Chall: They'd just set up the rule?

Swent: Yes. We tried to get them to change it from total cyanide to free cyanide and they wouldn't. The wording of the regulation was total cyanide. The analytical method they specified was also for total cyanide. It turned out that there was no known method to analyze for free cyanide when the complex cyanides were present. We tried to show them that there was no need for the total cyanide limitations, that the only toxic agent is the free cyanide. But they wouldn't change the regulation; it was already passed and in place. The state was involved in this and we had lots of meetings with both the state and EPA. So finally we negotiated a three-year extension before we had to meet the permit standards. In the

meantime they gave us a temporary permit, requiring that we would do research work in the meantime to try to find a solution.

Experimenting with Chemical Methods

Swent: So we started in. I had Doug Halbe head up the effort. We laid out a program of experimentation using several methods. We consulted a professor at the University of Utah to give us advice on bacteria that might decompose the complexes. We made a list of several chemical methods that had potential. Then we realized that we didn't have a large research facility. We didn't have the resources to test all of the ideas simultaneously. So we had to choose one at a time and test one at a time. We thought we'd have time to work through all these in the three years, and maybe we'd get a plant in, whatever type of plant we finally decided on.

Doug and the Lead staff chose to emphasize chemical methods, but we did do a little bacterial work in the mine--a few simple experiments to see if any bacteria existed that could grow in the presence of cyanide. The consultant that I hired, a fellow named Roy Neville, who was a naturalized British citizen here and a very bright chemist, worked only on chemical methods back in California. He was difficult to work with due to his unusual personality. He developed a method using ferrous sulphate that he eventually patented. Homestake owns the patent, fifty-fifty with him. At first he worked with distilled water to which he added cyanide. After he developed the method, the metallurgist in Lead shipped or gave him bottles of actual discharge solution and he refined his method using this material. When he had verified the process in California, we tried it out in Lead, building a small continuously operating plant. It worked after a fashion, but it didn't quite meet the specifications that we had to get to and would be expensive to continuous full scale operation. But it did improve things greatly, as we knew that chemically we could at least get near to our goal.

[1][We put a lot of stress on developing an analytical method for determining free cyanide alone. With that we could then determine the amount of complex cyanides present in a solution by subtracting the free cyanide present from the total cyanide present. The EPA analytical laboratories cooperated with us in this work. It took over a year to develop such a method. One thing that we found out early in the game was that we could not continue to use our existing old analytical lab because of its small size and because its proximity to

[1]The following paragraphs were added by Mr. Swent.

the operating processing plant was such that we were constantly getting cyanide contamination of samples. Hydrogen cyanide becomes a gas when in an acid solution and comes out of the solution into the air. For this reason all cyanide plants keep their solutions alkaline, but even with this "protective alkalinity," a small amount of HCH gets airborne and was getting into the old lab, contaminating low level samples. The low analytical levels we were trying to work at made it necessary to build a new, modern, larger analytical laboratory further from the processing plant than the old one, and also to equip it with air cleaning and conditioning equipment.

Between building a new lab and then doing the research work on a free cyanide analytical method, it was close to two years before we developed the free cyanide analytical method, but we finally did it. The principal investigator on this was Jim Whitlock, a graduate chemist on the Lead staff. Most of the analytical work was done by Carson Sharp, a young lady recently graduated in chemistry.

EPA's regulations specified different lists of contaminants and limitations for mines and mills. Usually mine water is discharged separately from mill or processing plant water with no limit on the quantity. Mill or processing water discharges are usually limited in quantity by EPA. At Lead, however, the mine and mill were tied together. As I believe I've mentioned before, the treatment in Lead involves separating the fast settling sand particles from the slow settling slime particles after the ore is ground. The sands and slimes were treated by different cyanide procedures. Then the sands were discharged through a complex sand storage area where the sand settled and the solution was returned to the plant. The sands were then slurried with tap water and ran into the mine for backfill in stopes. It went into the stopes as a slurry--mixture of sand and water. The sands settled in the stopes and the water flowed out. But the sands carried a small amount of cyanide, so the water that ran out of the stopes had a small amount of cyanide in it. In the mine other water joined the overflowing sand fill water and diluted the cyanide. At no point was it toxic to people. All the water pumped out of the mine (drinking water, machine cooling water, air conditioning water, dust settling water, sand fill water, et cetera) went to a large concrete tank to be reused in the mill.

Because of the tie between the mine and mill water circuits, EPA decided to limit Homestake to a single, limited quantity discharge. The final negotiated figure was 2,500 gallons per minute for both operations. This was done by EPA to keep Homestake from adding more fresh water to the mine and using that to further dilute the mill discharge. EPA will not permit dilution of a discharge to meet

limitation. There is a saying that "dilution is no solution."[1]

Then Doug Halbe resigned and went to work for Western Mining at Windaara in Western Australia, and I was still struggling with this problem. In Lead the metallurgical staff had hired a chemist named Jim Whitlock. A little later they also hired a fellow with a Ph.D. in water treatment named Terry Mudder. Both were very bright boys. They got sort of on the outs with Neville, and I had to finally take Neville off that job because he couldn't get along with them personally. He was kind of vain and they were looking at other methods than his patented method. I think he felt that that was an affront to him. Anyway I had to back him out of this.

None of these chemical methods had worked. So we went to the EPA and the state and had a joint meeting and said, in essence, "What we propose to do is build a chemical treatment plant. We'll do it to meet our deadline of the three years. We'll build the plant if you want us to, but you know as well as we do that it will not accomplish your goals." What they wanted to do was rehabilitate the stream to where fish could live in it. Fish couldn't live in it at the time, for several miles anyway, until the cyanide broke down. The cyanide that was being discharged eventually breaks down. The free cyanide is not a stable substance. They mulled it over. Under our extension agreement at the time we had to build a plant using the best technology we had developed, and after a year of operation they had to give us a discharge permit based on the best this plant could do.

The Bacterial Option

Swent: A short time before this meeting, Mudder and Whitlock had gone back and reviewed all our options. They went back to the bacterial option that we had started on with the University of Utah, but it had gotten sidetracked while we concentrated on chemical methods. We had found that there were bacteria that grew in the cyanide and isolated a bacterium. But that was as far as it had been taken. So they went back to that and began experimentation with it and did some lab experiments with it that came up very favorable, much more promising than any chemical method. So we took this preliminary data to EPA and the state and said, in essence, "We have this potential process but we need more time. What we would like to do is have the time to follow the bacterial road and do the research properly on that rather than build a plant that's not going to accomplish your goals anyway." They finally agreed to that and we negotiated another extension.

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[1]End of added paragraphs.

Chall: After all, you're doing research for the entire United States, when you come right down to it.

Swent: In a way, yes. Some of this had been done by Bethlehem Steel. They had a different cyanide problem, but they had used bacteria.

Chall: And solved it?

Swent: And solved their problems with the bacterial method. But it was a different one. We couldn't apply their method. Theirs was a steel plant where they used cyanide as a reagent in "pickling" steel. That's a process where you dip steel in certain chemical solutions to put a hard surface on it. At any rate, we got another extension in time from EPA and the state and proceeded to do the experimental work.

[Date of Interview: May 24, 1988] ##

Chall: Are those the notes that you had last time?

Swent: No, these are new notes. I wasn't quite sure where to start. But I think that I mentioned that we decided to go back to EPA and tell them that we wanted more time to work on the bacterial method rather than to go ahead and install the plant using chemical methods.

Chall: I think so.

Swent: We gave them some of our lab work showing what the potential was for the bacterial method. It looked, at the lab level at least, as if it were far superior to the chemical methods, and did have a chance of coming close to what EPA and the state wanted. So anyway, as a result of two or three meetings we did get an extension of time, I think it was for three years, and entered into a new agreement with them and then proceeded to try to develop the bacterial method.

We began with a lab scale-sized biocontacter. It's a cylindrical drum coated with a plastic surface, but the surface isn't absolutely flat. It's corrugated in corrugations that are parallel running at right angles to the axis of the drum. So it's almost like a series of rings. This drum rotates half-submerged in a tub of water or the liquid that you're trying to treat. The bacteria grow on the surface of the drum and as it rotates half the time it's in the solution and half the time it's in the air. This is aerobic treatment where oxygen is required for the growth of the bacteria. They get their gulp of oxygen on each revolution. The drum rotates slowly, on the order of two or three revolutions per minute, maybe four, something like that, so that there is a fair

amount of time out of the water or out of the solution and a pretty fair amount underneath.

At any rate, there was a bacterium that they managed to isolate which actually came from our tailings pond and from work that we did underground, because we had cyanide solutions underground in the mine, very weak, but nevertheless there. We would backfill in the mine with the sand fraction that's separated out in the mill. Although most of this is pretty well washed there is a small amount of cyanide that goes back into the mine. Early in the game when we started on this problem we did some work at both the tailings pond and in the mine to see if there were any bacteria present where these little concentrations were. We did detect some. And these are what they followed up on later. They isolated them and identified them, then grew them on purpose.

Chall: On the site?

Swent: On the site, and then found that they would destroy cyanide. They would eat it and break it down. So anyway we did work with a lab-sized biocontacter. When that worked successfully after a number of trials, why then we bought a bigger one.

Chall: How big is big?

Swent: Well, they're rated by diameters, and I think this one was, say, three feet in diameter. The lab one was probably ten or twelve inches in diameter. So then this one, the next step, was about a meter in diameter. When that proved successful then we went to final design, three meters in diameter. The final plant design had forty-eight of these. Tremendous things; they just took up a tremendous amount of space. It was out-of-doors and they had to be covered to protect them from the snow and the winter weather.

Chall: Were they noisy?

Swent: No, they're very quiet. You can't hear a thing. They're just rotating in and out of the water; they're absolutely quiet. We did try a few other methods besides the biocontacters. We tried a few other methods or pieces of equipment to grow the bacteria on, but this seemed to be the most logical and have the best results.

When we got to the final design I was getting close to my retirement date of June 30, 1983, which was really quite a little time after I was sixty-five. I was sixty-five in November of '81.

Chall: Yes, I think you were about sixty-seven when you retired.

Swent: Yes. My goal was I wanted to finish thirty years at Homestake.

Chall: Oh, I see.

Swent: I told Harry Conger that, so we set up a retirement date which would give me the thirty years. As I was approaching the retirement date in my last year there, the design for this plant came up, and it was to be a very expensive plant. I forget the exact figures now, $7 or $8 million. This was all new technology. And I got a little bit concerned that we were embarking on this without any outside advice. It was a process that we developed ourselves, and it was obviously working, but when you begin to scale up for plant-sized things there are always problems. So I asked Terry Mudder if he could give me some names of people who were prominent in the water treatment field. I didn't know anything about water treatment, and he had a Ph.D. in water treatment and knew the names of people and that sort of thing. So he gave me the names of four or five people that might make a good consultant on this. I contacted two or three of them and finally settled on one, named Wesley Eckenfelder, as a consultant to come and look over the design and look over the process, our data and what we'd done, and just give us an opinion as to whether it was feasible or not to do this.

That worked out fine. He went to Lead and while I was-- Well actually, this occurred in February of '83. I had a heart attack and was hospitalized for several weeks and then was around the house for several weeks after that, recovering. And by the time I recovered enough to go to work I did a few trips, but basically I was beginning to pack up the things in the office and get ready to get out of there.

So anyway, he went up there while I was still off with the heart attack, but he gave me a report by phone, saying that it was all fine as far as he was concerned, that it would work. He suggested that we not use as many biocontacters. He thought we could get away with fewer, and this would save maybe a half a million dollars on the capital cost. But the Lead staff didn't like that advice. They wanted to build the extra capacity, so they went ahead with it as originally designed. And it's been very successful. It went into service in '84 and was really quite successful from the beginning. Since then the company's gotten several awards from environmental organizations and others and recognition for installing the process.

Reclassifying the Stream

Swent: One of the things that helped us a little bit was getting the

stream reclassified. We discharged into a very local drainage called Gold Run Creek. That runs maybe a mile or so and then runs into Whitewood Creek, which is a major little drainage for the area. Whitewood Creek runs for many miles down to the Cheyenne River. The city of Deadwood, which is three miles below Lead, had built a sewage plant on Whitewood Creek, to treat local sewage.

The state agencies that were involved had classified the stream in several parts. They changed the classification from the Deadwood sewage plant up to where we were, to what they called a cold water fishery. This is the highest classification that you can give a stream and is fairly rarely used. It means that it's a cold climate, cold water, and is supposed to be a good habitat, proper habitat for trout and cold water fish. With it go a whole bunch of technical requirements, such as what the percentage of solids are and what the size of solids that can be contained in the discharge are. We were always very upset because the sewage plant was allowed thirty parts per million of solids in their discharge. By this change in classification we were limited to ten parts per million. We didn't see that it had that much effect.

Anyway, we did manage to get the stream reclassified to a lower classification, the same as from Deadwood down. The stream was fully rehabilitated within a year. We stocked it with trout and they lived and it's in good shape.

One of the things we had to do during all this work was to set up a biological lab on the test site, and whatever process we were testing we would run some of the effluent through this lab. There we had a bunch of tanks that we could put fish or different aquatic life into, and test the effect of the effluent on them. There are certain standardized tests in this field. One of them is ninety-six hours. You run the test for ninety-six hours and then observe, first of all, all the behaviors. And if any die, how many die, and that sort of thing. Basically you're looking for as few effects as possible. So we ran that lab for several years.

Chall: Did you have to bring in specialists to train people to watch these fish and other aquatic life?

Swent: Well, Mudder and Whitlock were able to train their operators and that sort of thing. We would buy the fish. The state had a fish hatchery down at Spearfish, about twenty miles away. We could buy the different size and different types of fish from them.

Revising the Tailings Dumping System

Chall: My, what a switch from mines and mills.

Swent: Yes, it certainly was. Homestake had to cease dumping the tailings into the creek. For years the slime tailings had gone down the creek. In fact at one time all the tailings went down the creek. Then in the 1930s we developed the technique for sand filling in the mine by using the sand fraction of the tailings. That cut the amount that we were discharging down the stream by maybe 40 or 50 percent.

But then in the seventies under the new laws and EPA we had to quit dumping even the slimes down there. So Homestake built a big tailings dam up in a gulch called Grizzly Gulch and put in a huge pumping plant to pump the tailings up there, and then pipelines up and over and down and up hills, then return pipelines for returning the decant solution for reuse in the mill or discharge. The part that was discharged was to be treated so it would meet EPA's purity requirements.

In combination with the tailings dam installation and the water treatment plant, I guess Homestake invested well over $20 million, particularly if you count the research work that we did. But in the long run it's been successful and has gotten lots of praise and favorable publicity and recognition.

Chall: Is it copied by other mines and mills? Do they have the same problems?

Swent: Well, the technology of the tailings dam wasn't anything unusual. The only thing about it was the local engineering of it. We got some very capable dam consultants in. One gentleman eighty years old was one of the country's foremost dam designers and consultants. He came up and advised us on the dam and watched some of the critical phases of construction. It was up a creek and if it were to fail it would have a--well, it wouldn't be as disastrous as some of the dam failures that there have been, but there were residences downstream that would be affected and washed out probably if there was a sudden failure. At any rate, it seems very successful and all of that is operating quite favorably now.

Mine Safety and Health: Setting Standards on Radon Daughters, 1950s - 1980s

Swent: I thought maybe at this point I might switch over in subjects to the mine safety and health business. This is kind of a long story, and the two of them, health and safety, are sort of intertwined in ways, and at other times they're almost separate.

Chall: This is something that you were also doing when you were vice president of environmental affairs?

Swent: Well, it started a long time before that.

Background: Uranium Mines and Radon Daughters

Swent: Radon is an odorless, heavy gas that has no color. It settles to the bottom of openings, rooms, wherever it is, if the air is still. The half-life of radon is about 3.8 days. That means that at 3.8 days if you start off with a given quantity of radon gas it will have decayed to half of its original amount. As radioactive materials go, that's a fairly short half-life. The half-life of uranium, for instance, is something like four-and-a-half million years. So 3.8 days is a fairly short half-life.

When radon decays it decays into a solid. If you have radon, say, in an opening with air and all of a sudden an atom decays to a solid, then you have a particle floating in the air, an atom-sized particle, solid. This is normally called radium A. That has a half-life of something on the order of thirty minutes. Then it decays into another one called radium B, which has a half life of just a very few minutes also. Then there's a third one called radium C, which has a short half-life also of a few minutes. Then finally radium C', which has a half-life of a very small fraction of a second. Then radium C' decomposes into lead 210, which has a half-life of something like twenty years. That's considered relatively stable.

Those four very short half-lived decendents from radium, radium A, B, C, and C', are called radon daughters. Most air has a mixture of them in it. Radon is ubiquitous. There is radon in very small quantities in virtually all air, because radon emanates from radium and radium is virtually ubiquitous in small, small quantities. Almost all soils have radium in them. Nearly all rocks have some radium in them. It's constantly emanating out of these rocks, radon is, and into the air.

In uranium mines it becomes more concentrated. The amounts present are much higher than they are in normal air. It was found that if you breathed the air you would breathe in the radon daughters, and they would get into the lungs and decompose in the lungs and bombard the lungs with radiation and could cause lung cancer in a certain percentage of people.

Radon itself was finally found not to be as bad as radon daughters even though its half-life is 3.8 days, because you could breathe in a lungful of radon gas, or of air containing radon, and exhale it before very much radiation took place. On the other hand, the radon daughters, being particles, you couldn't exhale. When they're inhaled they impinge on the surfaces of the lung and of your bronchial tree and stay there, and they're not breathed out or expelled very readily. So they were the real hazard, although it took quite a few years to realize this. At first everybody was just as upset over radon as they were over radon daughters.

Background: The European Experience, 1900s - 1951

Swent: Finally, though, most of this technology was worked out and they began to know which were the bad actors. I should go back a little ways and give some historical background here. Until the American experience in the uranium mines at the end of World War II and in the fifties and sixties, the only real experience there had been in the world with radon, and radon daughters, and radiation was in European mines in Saxony and Bohemia. Some of them were near a place called Joachimstal. That was in Bohemia, in what is now Czechoslovakia. At the same time over the mountains in Schneeberg in Germany there were some mines that also had radium in them. Both these mining districts had tremendous death rates. For a long time they didn't really know what the miners were dying of, but they were dying in unusual numbers. Finally, somewhere around 1900, it was identified as lung cancer that was causing the deaths.

Before World War II a small amount of knowledge came out of this. A few radiation measurements of the air had been made, but not very much. All that was known really was that there was a lot of lung cancer and that it had been attributed to the radiation, but these mines also had enough other elements that were regarded as possibly carcinogenic so that nobody was sure. There were some people who thought that there was arsenic in the mines and that arsenic could be causing this.

Originally they suspected the radon. Nobody knew about the radon daughters at that point. But people doing the theoretical calculations on radon couldn't point to enough damage, and they couldn't really add it up. It wasn't until about 1951 that somebody realized that they were omitting the radiation that came from the radon daughters. In 1951 two people, I think, came upon this idea and published it. Then the emphasis was changed from watching the radon concentrations to watching the radon daughter concentrations.

The Federal Radiation Council Guides Research, 1967 - 1970s

Swent: At any rate, in 1967 the Federal Radiation Council, which had been originally formed by President Dwight Eisenhower to provide guidance to federal agencies on radiation matters, started to study the problem of exposure of uranium miners to radon daughters. They held a meeting in Washington in March of 1967 and I was invited to go to the meeting. Before then there had been quite a bit of internal work done. The council had worked somewhat with Dr. Matthew Connell, who was the head of the Grants Clinic. I think I outlined before how we had established the Grants Clinic. He had been involved in some of the study work that the Federal Radiation Council did before they called this meeting.

Determining the Allowable Unit of Exposure: The Working-Level-Month

Swent: At any rate, at the meeting in Washington we were all asked to make some statements and discuss a proposition that they came up with of a limit on exposure, what the exposure should be, what the concentration should be. The unit of concentration, to be rather technical, is called a working level. I won't give the numbers on it, but it's based on the amount of potential alpha radiation contained in one liter of air. That's called the working level. The reason they called it this was that originally the people who devised the unit thought that exposure to this level of radon daughters--that is, working at that level of concentration--wouldn't cause any ill effects. Probably they were wrong, but it got its name as the working level and that stuck.

Then the unit of exposure that they adopted was the working-level-month. Now a working-level-month means exposure to a concentration of one working level for one month of working time. A month of working time was finally decided to be 173 hours on the average. So exposure to one working level for 173 hours is considered one working-level-month. The Federal Radiation Council staff was proposing, or at least suggesting, a limit of twelve working-level-months per year, which was the first time that any limit had been proposed in terms of total exposure. Up until then the state and federal agencies involved had been regulating by using the working level and just limiting the concentrations in the working areas. You would take a sample of the air and determine what the concentration was. If it was over one working level but under three, generally speaking nothing needed to be done. If it was over three you had to take remedial action. If it was over ten you had to shut down until you could improve it to below three or

below one, I guess it was. This had all been done in terms of concentrations. Now the emphasis was shifted onto the exposure, which is probably a better measure. Twelve working-level-months meant an average of one working level. If you worked throughout the year at one working level you would get twelve working-level-months.

Chall: Do you call that the exposure unit or just the working level?

Swent: That's an exposure unit. That's exposure.

Chall: Before, you just took the level of that particular concentration?

Swent: Yes, the concentration really wasn't a good control because you had no idea how long a person was working in it.

Chall: Yes, I see. How often would they check the air in the mine?

Swent: Well, this has changed over the years. Initially it wasn't done. When the mines first started, people didn't even know about this, so there was no checking of it. But then the Atomic Energy Commission did some warning on it [radon concentration] and the Public Health Service began doing measurements. The instrumentation for doing it was not very good in the early days.

Testing the Mines for Radon Daughters Concentration: Early Studies

Swent: Then about 1955 or '56 they developed a fairly convenient method called the Kusnetz method. Even this wasn't too satisfactory. What you did was to pull a sample of air through a filter, a little tiny filter about an inch in diameter. A pump pulled air through the filter for five or ten minutes. The filter would catch the radon daughter particles as well as other dust. The radon would go through, but the filter would catch the radon daughter particles--they're easily filtered. Then you would put this paper in an instrument that would count the alpha particle disintegrations, how many you were getting in a given unit of time. From that you had tables that you could use to calculate the working levels.

There were two problems with this. One is, the instruments were easily contaminated, that is, the counting instruments. So it was best to do the counting outside the mine. And secondly, you had to wait at least forty minutes after taking the sample before counting it. So it was quite awkward. A person would go down underground and maybe take six to ten samples and then have to rush

out of the mine and count them. It would be several hours from the time that he took a sample in a given place and the time the result was known at the place the sample was taken. Then if it was too high and you had to do something, you had to send word back down to the working place or to some supervisor about it.

Chall: Already had a couple of hours of the concentration limit?

Swent: Yes.

Chall: I suppose it would vary depending upon how much work was being done. Maybe it was clearer in the morning.

Swent: Well, it did vary. I was able to show that it varied with the type of work. If you were moving rock around in some way, say shoveling it or scraping it, the radon daughter concentrations would be higher than if you were drilling. If you were drilling all you had was the emanation of radon from the walls and surfaces around you, and to the ventilation you were adding the compressed air that runs the drills. When you were shoveling you had a pile of broken ore or rock that had radon in it, and as you shoveled it you were releasing this radon into the air.

Chall: What would happen if it were above the working level, you know, at the end of the forty-minute period? Would you take people out of the mine or would you put more air into it? What would you do?

Swent: Well, it depended on how far over it was. Gordon Miner was very instrumental in this. He worked on a committee for the American Standards Association that came up in 1960 with an American Standards Association standard. That one was what I mentioned a few minutes ago: if it was between one and three it was considered satisfactory, if it was three to ten you had to do something, change the ventilation, improve the ventilation. If it was over ten then you shut the place down and took the men out until it was improved, and wore respirators while doing the repair work.

Testing the Mines: Early Studies

Chall: I see. Now did each man in the mine have to have his own special set of statistics, so that you knew how much radon he was getting?

Swent: No, not at first. That did come later, but not at first. This American Standards thing was established in 1960 and the mine inspectors of the various states grabbed onto that and used that for their enforcement actions. Then gradually, as average results got lower, the state agencies began lowering the possible limit.

As more data became available and a number of lung cancer deaths began showing up, the states began lowering those numbers.

One of the problems with the whole situation is that it takes many years for lung cancer to show up. It may take anywhere from ten to forty years, depending on a number of factors, one of the factors being how much a person smokes--smokes cigarettes, that is --and also what the concentration of the radon daughters was.

In the early days there were some tremendous exposures. The records show people getting-- well, I think the highest that I know of was a man got 16,000 working-level-months of exposure. Basically it should be down in the below 100 range for a lifetime of exposure, so 16,000 was a tremendous thing. I think there were six people that I know of who had over 10,000 working-level-months of exposure. Now these are exposures worked out after the fact, by going back and saying, well, he worked in this mine which had an average of this, so many working levels from the measurements that we have. He worked there for three years so he got so much.

Later the record keeping got very, very detailed, and now it's very elaborate.

Chall: Per man?

Swent: Per man, yes.

Chall: What's the effect in terms of the miners? Were they able to get special health protection and health benefits from the company if they became ill?

Swent: I don't think any special benefits or special protections, but they had good medical and hospital care. Of course they were each given a physical examination. At Grants Homestake gave them, the partnership gave them, a required annual physical. A pathologist in Grand Junction named Geno Saccomanno worked out a method of analyzing sputum to detect pre-cancerous conditions. So we required the sputum tests. Once that technique developed, we added that to the annual physical for underground people. We didn't require it of the surface people. At first we sent samples to Saccomanno, and then other pathologists got to where they could also analyze them, so we would send them to others.

As far as special treatment, of course, you were always on the alert to anybody who might get lung cancer, but it was very difficult to detect it until it's almost too late. The sputum testing was the best thing there was, and it wasn't too satisfactory in that the principle of it depended upon getting sputum coughed up from deep in the lungs, and it's difficult to do.

Most people when they cough just get sputum up from the very upper part of the chest, and it's not from the lung. It takes a real special cough. So that you're never sure that you've gotten a good sample in the sputum. But when it's analyzed, the one thing that was good about it was that if it showed a pre-cancerous condition, that was positive. You could believe that. A result that showed no pre-cancerous or cancerous condition didn't mean much because of the sample problem.

Now, Saccomanno developed a scale of different stages of sputum deterioration, pre-cancerous deterioration from a normal sputum to slightly atypical and on down into actually cancerous conditions. Once the sputum test result got beyond about the third stage of his classification scheme you could be pretty sure that there was a lung cancer. Then you'd start looking for it. Sometimes you couldn't spot it and had to go to very elaborate means to try to find out where it was, including what they call bronchoscopies, where they put a little tube down your throat and try to look around in the bronchus and in the bronchial tubes that it goes through, to see if they can spot it.

Once in a while you could find the cancer site in time for it to be treated or operated on. By the time a lung cancer appears on an x-ray it's generally too late. By then it's begun to spread and become invasive and they aren't operable. So even today we're still looking for a better method of detecting them in advance of x-rays.

Chall: What would happen to the men who checked out positive and were going through these special tests? Would they be laid off?

Swent: Not necessarily. It would depend on how serious things had gone. Some of them, one or two who had surgery, actually went back to work. But as I say the problem generally was that you didn't get very many among your employees because it took years to develop, and they would have quit and gone somewhere else and they'd develop lung cancer somewhere else. Many times you didn't even know that one of your ex-employees had developed lung cancer.

Chall: But you had enough on the job steadily so that you could actually prove this out in your tests?

Swent: Well, in the years that we were there--when I handled the uranium operations, and continued my association with them for maybe thirty years--in that period of time among our employees I don't think we had more than an average of one lung cancer a year. So they weren't really all that common. When I say one lung cancer a year, that's that we know of--those we had actually on the job who were actively working for us and developed lung cancer. That might have

been seven or eight, something of that order, maybe ten out of the total of thirty. So that the number that actually developed cancer among the employees while they were working for us was very small. There were people who had left and whom we learned later had had lung cancer, but they were not in my count of partnership employees who came down with lung cancer while working for us.

One of the things that the radon daughters do is it brings the lung cancer on somewhat earlier than it would have appeared from smoking. The average age of those getting lung cancer from smoking is up in the sixties, whereas the average age of the uranium miners who smoked is something like eight to ten years younger, in their fifties, late fifties. That's an average, of course. The youngest one of all was thirty-three. But that wasn't one of ours. That was a fellow up in the Colorado Plateau with extremely high exposure who was a heavy smoker.

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The U.S. Public Health Service [USPHS] began a study of American uranium miners in 1952. There had been a lot of debate about the subject, based on the European experience and the fact that there wasn't agreement on the matter. So, there was a lot of disagreement as to what was safe and what wasn't, and the study was undertaken. What they did was to go around to uranium mines, with a trailer that had a portable x-ray machine in it, and they would offer a free physical examination to any miners. Actually, they included mill people in this at the time, although they later separated the miners out and limited their study to the miners.

They would offer a free physical examination to anybody who volunteered to be in the study. If they volunteered to be in the study they wanted an interview with them. They gave each volunteer a detailed interview, got his smoking history, history of other illnesses, and an employment history--where they had worked and in what years--this sort of thing. They tried to get samples of radon daughters underground in the mines where these people were working. Eventually they wound up with a group of 3,366 underground miners that then they began to follow. As part of the study the men had to agree to report in annually where they were, and to answer occasional follow-up questionnaires, and to keep the Public Health Service informed of their address.[1]

In about 1960 they could begin to see a few deaths in the group. Now many of those people in that group, although they were examined, say, beginning in 1952, had already been working in the

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[1]More on this study on page 683.

uranium mines for a number of years. Some of them actually went back to even before the war, because although in 1952 the mines were mined for uranium in the past, they had been mined for radium; the same mines were mined for radium. And some of them had been mined for vanadium in the early years before 1952. Vanadium and uranium frequently occur together. So the USPHS picked up a lot of that old experience but they just had to guess at their exposures in the older years, based on measurements of radon daughters made in later years.

But by 1960 the USPHS began detecting more lung cancers in the study group than were expected. They held what was called a governors' conference. They thought the situation was serious enough that they wanted to get the governors of the various mining states alerted to this. They called the conference in Denver in December and scared the daylights out of most of the governors and their staffs. At that time the sputum testing had just been developed, and they had gone through and done sputums on a tremendous number of these members of the study. They released the figures to the governors, and so help me [chuckles] they got them backwards. The number of atypical ones were actually the number of normal ones. Of course this got everybody really upset, and it took about a month before this got straightened out. By then the damage was done; it had just spread like wildfire.

Chall: Statistics that linger, too.

Swent: Yes. But 1960, I would say, was the beginning of the real concern about this. Up until then it hadn't really been a major concern. But then all mines started trying to get--and the mine inspectors started pushing for--lower standards. And mines began taking their own readings. Up until then most of the time they just depended on the U.S. Public Health Service people or the state Public Health Service people or the mine inspectors to take readings and tell them what they were. This was the year that the American Standards Association published its exposure standard. State Mine Inspectors and mine operators immediately began to use it.

The Federal Radiation Council Sets Standards, 1967

Swent: Anyway, by 1967, when they had this conference in Washington, this USPHS study was beginning to show some tangible results. The council staff had divided the men up into exposure categories of how many working-level-months they estimated each man had. They were showing that it probably would be safe at one working-level concentration, or twelve working-level-months, per year. So at

this meeting they announced that that was what they were going to recommend, but it didn't come out quite that soon. The Federal Radiation Council is made up of several cabinet officers, and they have to take the official actions. The staff can recommend to them, but the officials who do the deciding on policy are these cabinet officers. So anyway, then the procedure was that the Federal Radiation Council would make a recommendation to the president and then the president would approve it. So the findings of the staff that they came up with at this meeting were eventually worked up into such a finding and approved by the cabinet members. It went to President Johnson, and he signed it on July 27, 1967.

One secretary, a member of the FRC who didn't agree, was Secretary of Labor, [Willard] Wirtz. He had had a relative who died of lung cancer and he was very, very emotional about it. In the Atomic Energy Commission contracts there was a clause or an article--and it's a standard article for all federal contracts--that they were subject to the provisions of the Walsh-Healy Act, that is, the contractor was, and all subcontractors. The Walsh-Healy Act is a labor standards act which has all sorts of provisions in it, including safety and health provisions, and it empowers the secretary of labor to issue regulations. So Secretary of Labor Wirtz took it on himself in 1967 to issue a proposed regulation under the Walsh-Healy Act limiting exposure to 3.6 working-level-months per year. This created quite a furor, because this was not the exposure limit for which the Federal Radiation Council had voted, and he had gone around it.

Chall: It's a considerable change.

Congressional Hearings: Joint Committee on Atomic Energy, 1967

Swent: So they had congressional hearings on it. A subcommittee of the Joint Committee on Atomic Energy held very extensive hearings in the summer of '67. I was there as a witness. The Public Health Service reported. It was a big and thorough hearing. Finally, at the end, they asked to have what they called a special panel testify, a panel of twelve people that the committee had selected to represent all points of view. They said, "We'd like to have you come." They gave us a set of several questions to answer, that we had to have prepared answers for. Then they asked us verbal questions. I was one of the twelve panelists. That was a very interesting experience.

Basically the joint committee was sympathetic to the problems of the industry. They were industry-oriented and didn't want to

see the nuclear program disrupted. But they were also concerned with its being safe. They got very deeply into this question of the difference between the Federal Radiation Council and the Walsh Healy Act under Secretary Wirtz. All of us that had mills were subject to this Walsh Healy Act regulation.

This all dragged on. I think in '67 finally Wirtz withdrew his regulation. But then he came back with it a year later and changed it to four working-level-months instead of 3.6.

[Date of Interview: May 27, 1988] ##

Swent: In reflecting on our session on Tuesday I think that I gave too short a version of some of the events. And I'm going to go back and fill in on some of them. The first thing I'll start with are the 1967 congressional hearings. These were hearings before the Subcommittee on Research Development in Radiation of the Joint Committee on Atomic Energy of the U.S. Congress. They were on radiation exposure of uranium miners and were triggered by the development that Secretary of Labor Willard Wirtz had come out with a 3.6 working level months per year standard.

The hearings lasted for several months in essence, but they had three days of hearings in May and then four days in the middle of June, two days near the end of July and two days in mid-August. As I said, they were triggered by Secretary of Labor Willard Wirtz's 3.6 working-level-months per year proposed regulation for the Walsh-Healy Act as compared to the 12 working-level-months per year recommendation of the Federal Radiation Council. So the joint committee decided that they should have hearings on the subject and try to bring out all the information they could and see if this would lead to some solution to this divergence.

I always felt that the Joint Committee on Atomic Energy was a very good committee. It basically was not a political committee. It didn't have partisan politics involved at all. Many of the others that you got into like the labor committee and that sort of thing really had partisan politics behind them, particularly the labor versus management type politics.

Everybody that knew anything at all about radon daughters and some that didn't, testified. Of course, you testified only by invitation, but nevertheless the joint committee tried to get everybody that was involved in the scene to testify. The record of the hearings is really pretty hefty, as you can see by these two volumes here. [points to volumes] But they began, of course, as they always do with government agencies testifying. And they had under the government agencies, the Public Health Service, who

testified as to their study. They came up with what they called a mathematical model that they had developed based on the results of their study. This was used to forecast what would happen in the future.

Chall: Did Willard Wirtz's decision come out of that model?

Swent: No. Basically the Department of Labor did not put in much testimony. I'm not sure whether they testified at all; I don't remember. I could go through these records and see, but--

Chall: That's all right. The information is available for research.

Swent: They didn't attempt to defend their proposed standard. Secretary Wirtz was known to be pretty emotional about the issue based on the fact that a member of his family had died of lung cancer. He was very emotional about the subject and wanted to be as conservative as possible. And he was a member of the Federal Radiation Council, so theoretically he had access to all the information, and he had attended some of the meetings personally.

I think I mentioned before that the session wound up with a twelve-man round table discussion, and they gave prepared questions to everybody. We had to come in with answers and then give our answers at this session. Then after everybody had gone through and given their answers to the prepared questions, the hearing panel then addressed questions to the various individuals on the round table.

Chall: You were one of the members of the twelve?

Swent: Yes, I was selected to appear for the Mining Congress.

Chall: The Mining Congress selected you?

Swent: Yes.

Chall: Were the questions good questions? I mean, was the final report of the round table good?

Swent: Yes, it was fairly good. It was a good airing of views. I don't think it resolved anything. But one of the things that did result from this and one of the reasons for the month gap between the July and the August hearings was that early on in the hearings the Public Health Service came under a lot of criticism. So the surgeon general appointed-- well, I don't know if it was the surgeon general or whether someone in the secretary's office decided to do this. But at any rate they named a panel headed by a man named Donaldson who was with the Public Health Service to

review the Public Health Service study and their mathematical model and all the calculations. So his committee did so, and they did a very thorough job, and came back and made a report in the final sessions. Of course that's taking from May to August, so they had several months in which to do this. As a result of that, Secretary John Gardner got up--I forget what they call that, then Secretary of Health, Education, and Welfare, I guess.

Chall: It may have been in those days.

Swent: The title keeps changing. It's now Health and Human Services. At any rate, he was secretary at the time, and I've always felt very kindly towards him because he had the courage to do something that I've never seen any other government agency representative do, and that is he admitted an error. The Donaldson committee, when they had reviewed the data, said the mathematical model was wrong, and he got up on the stand and said so. And they withdrew it. I've had years of dealing with government agencies, and I've never seen one admit fault just outright like that. Most of them will find a way around it, of admitting the fault. They will go off in another direction or something, but they'll never admit that they did something wrong. So I always admired John Gardner for having done that.

Chall: Did it make a big difference?

Swent: Well, yes. And one of the things the Donaldson committee pointed out was that the Public Health Service study had ignored smoking. In their interviews with these uranium miners they had each man's statement as to what his smoking habits were. And they found when they classified these and analyzed them that they smoked much more than the average population did. This in itself would increase the expected rate, that is, the amount of excess smoking they did would increase the amount of lung cancer that would be expected in this group by about 49 percent, which was quite a boost.

There was one other thing they threw in, and that is exposure in what they called "other hard rock" mining, which was abbreviated as OHR. Many of the uranium miners had mined in other types of mining first. Any exposure in that other type of mining had been ignored. So they did produce an estimate of what this other hard rock mining exposure had been. And when this was added to their uranium exposure and then the expecteds calculated using the smoking data, they found that there was no excess of lung cancer in the exposure category of less than 120 working-level-months. This was really a dramatic finding and caused quite a furor. The hearings were closed.

Regulations Established Following the Hearings, 1967

Swent: Now the committee took no action. But Willard Wirtz did make some conclusions. In his original regulation they had put in language about giving variances to mines that couldn't immediately conform to the 3.6. A variance would be given to them to work at 12, provided they were making progress towards getting down to the 3.6. There were some language problems in the first draft, so in August he published a new version correcting some of the poor language, then continued this variance program. He amplified the variance program a little bit. So actually what they did then was they gave everybody variances. Nobody was really required to meet the 3.6.

Chall: Were they required to meet the 12?

Swent: Yes, but this had also come out from the Federal Radiation Council. Now, basically the Federal Radiation Council guidance at that point didn't really affect the mining industry, because the Federal Radiation Council's finding was a general one and was to be guidance to federal agencies. It's not binding or is not anything that comes down immediately on private industry. The proper agencies were supposed to adopt this and put it in their regulations. So this meant the Department of Interior as far as mining went; under the federal Non-metallic Mine Safety Act, they had the jurisdiction. So it was up to the Department of Interior to adopt the regulation or the guidance that the Federal Radiation Council had proposed. They were to administer it and enforce it. And at the time they didn't do it, mainly because they were still in the process of forming advisory committees. They were all tangled up in that.

The Atomic Energy Commission and the Mills

Chall: A lot of different federal agencies seemed to have a hand in this. I guess it's difficult to keep it all sorted out, to know which agency is charged with actual administration or enforcement.

Swent: Well, there was a lot of debate and there is to this day, about the Atomic Energy Commission's role in this. The Atomic Energy Commission basically was trying to put as much of the Atomic Energy program into private industry hands as possible, and to stay away from government doing things. They were highly influenced in that direction.

Originally they gave licenses to mine uranium. These were very general type licenses, and you had to have a license to sell it to the government buying station. Then later they changed this from giving individual licenses to each mine. In their regulations they published what they called the general license that just said anyone is authorized and licensed to mine and sell uranium ore to the government buying stations. So that you didn't have to go and ask for an individual license; they exercised no control. They said right from the beginning that they had no control over mine safety and health, although in the mills which were individually licensed, they did. They had a long set of regulations that applied to mills, but they had no regulations that applied to mines. They were very strongly criticized for this.

Chall: What was the rationale about regulating mills? I can see safety in mills would be different from safety in mines.

Swent: Well, it was a stage further down what we call the nuclear fuel cycle. Raw ore was really a natural material, and the AEC didn't think that they really had to exercise their authority until it began getting into a more refined form. Now the mills were individually licensed; because they were producing a much more toxic substance they were strongly watched. Their quota of regulations had a very extensive set of standards that applied. They were very orderly about inspecting mills periodically and finding the faults and advising them of what they'd found and giving them an opportunity to correct it. If they weren't corrected, why then the AEC was empowered to levy fines.

I think the criterion was that yellowcake is a much more toxic substance than raw uranium ore. It's not necessarily more radioactive, but it is toxic. It does extensive kidney damage if it's inhaled or ingested in any large quantities. And as I say, it's one step closer to the fissionable material. Yellowcake is not fissionable in itself; it would take a tremendous pile of yellowcake to spontaneously fission. I've never heard of one that big ever being accumulated, and in Grand Junction the Atomic Energy Commission had tremendous stockpiles of yellowcake.

Federal Radiation Council Task Force, 1968

Swent: I guess the next development was that in 1968 the Federal Radiation Council considered the subject again, reviewed it, and they established during the interim time what they called a task force or a task group that consisted of dozens of individuals that they appointed to monitor progress and try to see what new developments

there were and what new data could be gathered, particularly on how to lower concentrations in the uranium mines. I was on that task force, and the government paid my way to Washington for several meetings. We would sit and hear all these reports from the different states and federal agencies that were involved as to what they were doing and what they'd found. That would be it.

U.S. Public Health Service Long-Term Study of Uranium Miners and the Critical Response

Swent: The big thing that they were waiting on was for another follow-up in the U.S. Public Health Service study. This was a study, as I said, of around 3,366 people who had been working in the uranium mines in the fifties, up to 1960. The last person that got into the study was contacted in 1960. The way the study was conducted, they kept in touch with all these men. Every year they would go around to the mines and find out where they were working. On some of them they would have to write and find out where they'd gone and keep their records up-to-date and calculate their exposure.

Then periodically, every few years, they would do what is called in the epidemiological circles, follow-up. Now follow-up means to find out how many of them are alive and how many are dead at a given date, and get death certificates on those who died. Then the death certificates are coded by an International Cause of Death code. There is a number that's assigned, because death certificates will vary somewhat based on individual doctor's language. But the ICD or the International Cause of Death coding is supposed to bring some uniformity into this, so that if one doctor says cancer of the lung and the other one says squamous cell carcinoma of the lung, they mean the same thing. Then they code them the same, and this code is revised periodically. Every few years as they develop more knowledge on causes of death and on diseases, they revise that coding.

Chall: So you felt the statistics were pretty valid, is that it?

Swent: No, we didn't feel that the Public Health Service study was very good, actually. The way they proceed with the study is that when they do this follow-up, they calculate for each individual how many what they call person-years there were since he was first admitted to the study up until he died, or up until the follow-up date if he's still alive. And they calculate how many person-years he had and in what calendar years he had those person-years, then they go to the national statistics for those years. Normally they used the national statistics for those years. On lung cancer they vary;

it's not a steady thing. Lung cancer rates are increasing calendar year by calendar year, so it's important that each man's experience be related to the particular calendar year in which he had cancer. They calculate then how many person-years there were in a given year and how many lung cancer deaths would be expected from the national figures for that number of person-years, for that particular calendar year. Of course, the national statistics are always a couple of years behind. It takes time to accumulate all the data and then analyze it from all the states.

But what the Public Health Service did in the original study in the early days, in the sixties, which I'm talking about here, they didn't use the national statistics. They used the statistics from four states, from Colorado, New Mexico, Arizona, and Utah, because they said those had a lower lung cancer rate. Those were the states that were involved in uranium mining, and they had a lower lung cancer rate than the national statistics. The national statistics had a lot of urban areas, and all this mining of course was not done in urban areas. At any rate, they used this special four-state lung cancer rate that they developed themselves. It's not generally published.

No, we criticized the study for a number of reasons. One was we thought that it was improper to just use volunteers. All the men in the study were just those who had volunteered. The inference is that men who thought they were healthy and had no worries about their health wouldn't volunteer, so that they had enrolled people who were concerned about their health and maybe already had some reason to suspect that they had lung problems.

Secondly, they didn't verify employment with the employers. The men came to them and said, I'm working for so-and-so and I used to work for so-and-so and I used to work for that mine. They would give their full employment history, but this was never verified with the employers. It was thought that a lot of this could be wrong: that the periods of time of employment, particularly, and the type of work that they did, and how much they were underground, could vary.

The other thing was that a great number of these men already had lung problems. Some of them had silicosis that they had developed in their other mining experience before they went into uranium mining.

The thing that really irked the industry, irked us, was that at that time there was no Privacy Act, but the Public Health Service claimed that this was a doctor-patient relationship, and that they could not reveal the names of the individuals or any specific identifying information on them so that we could check

these things out that we thought should be checked out, like verifying employment and that sort of thing.

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The Federal Radiation Council published what they called their Report Number 8, and labeled it preliminary. This was in May of '67 when the hearings began, and was called Guidance for the Control of Radiation Hazards in Uranium Mining. In this report they listed all the lung cancer cases that had occurred in the group. There were forty-nine of them, and they listed them by their exposure categories. They were just listed by numbers, case number one, two, and so on. They listed their smoking habits, the years that they had smoked, their underlying cause of death--these were all lung cancer cases--a description of the type of cancer (they do differ), the ICD code number assigned to it, the exact date of death, like December 5, 1965, age at that time, the months he had worked underground, the time span of exposure, and the type of cell. Now there are several types of cells in lung cancer, basically half a dozen, and they listed the type and then how this had been diagnosed, whether by x-ray or by an autopsy or biopsy, or sputum.

Actually, from this data, particularly the date of death was helpful. We were then able to take this table and eventually to identify all of the individuals by going around to mining companies and such places, and finding out from their records who had died of lung cancer. Eventually we identified all of them. Robley Evans and I worked on it. He was very vociferous about this identification business.

Chall: There were forty-nine of these people?

Swent: Yes. He and I worked together on it, and eventually identified all of them.

Chall: That result was important? Did you cause changes in final results when you checked the data?

Swent: Well, as a result of all this, yes. The USPHS reclassified some of them as a result of people poking around and finding out where some of these people had worked. Like, one of them had been a Kerr-McGee employee and Robley Evans was a consultant to Kerr-McGee. One of them, Case Number 23, whose name was A. O. Greenhill, they found had worked at an open pit mine much of the time and had not worked underground. He was a supervisor and hadn't spent as much time underground as they had claimed. They revised his exposure greatly, which put him into a different exposure category. And

there were a number of others like that, so this group did create some changes.

Chall: But that would have meant that these forty-nine people would have had to die while they were still working, otherwise you wouldn't have been able to find them, would you?

Swent: Oh, not necessarily.

Chall: What if they had been retired? I'm just trying to figure out this detective work.

Swent: Well, it wasn't easy. The other thing that came out of this was an analysis of the cell types. It was obvious that the type that they called undifferentiated small cell, or the OAT cell, was the prevalent type of cell among these forty-nine uranium miners. In the ordinary population this type of cell is somewhat rare. Maybe 18 to 20 percent of the normal population of those who die of lung cancer are OAT cell; other types are more prominent. Yet among uranium miners, or among these forty-nine, it was something like two-thirds of them. But I was able to show at the hearings that this was only applicable to those exposed at very high levels. The percentage decreased as the amount of exposure decreased.

So this prompted a review of the subject. A group of pathologists was engaged, three of them, to reanalyze all of the cell types. They had records and slides and things that they could look at and reanalyze them and see if this was correct. When they got all through it was a real mess. They finally decided that this wasn't really a good identifier for uranium mining, particularly at the lower levels of exposure. As exposure levels have fallen so has the percentage of OAT cell cases.

Chall: What's the name of the cell?

Swent: OAT, or small cell, undifferentiated. Actually, there was quite a controversy for several years over this among the pathologists. The net result was that they decided it was not as determinating as they had thought. At first they were pointing out in these hearings that anybody with OAT cell cancer had died from uranium mining exposure, that this was a real tool to identify them. One of the big problems is compensation. It's not like silicosis, which is entirely an occupational disease. The ordinary person never gets silicosis, so if a person gets silicosis you know that he was exposed someplace in his work to silica, whereas lung cancer does occur among the normal population.

So, when somebody dies of lung cancer and he worked in the uranium mine, the compensation issue comes up, whether this was

caused by his employment or not. It's a real difficult problem to assess, particularly at the lower exposures. If he's had a very high exposure I don't think there's much question that uranium probably caused it, or the uranium mining. But as exposures went down this got to be more and more of a thorny problem of how to decide whether a person's lung cancer was due to his occupation or not. For a while they tried to use this cell type as a guide line, but eventually that had to be abolished.

Chall: This activity, checking, et cetera, and insisting upon validation was really the work of the Federal Radiation Council, or your task force, or was it the industry?

Swent: No, it was a few of us in industry really. Now some of it came about through pathologists, like this study of the cells. The pathologists really eventually came up with the answers. We just pointed out that what they'd presented in the FRC report showed such-and-such. This prompted them to form the pathology panel and to study the subject more.

Chall: So you really had to be on top of it as an industry group to make sure that the figures made sense to you.

Swent: Yes. Another thing that came out at the time was what was called the Woodward and Fondiller Report. The state of Colorado has its own compensation system and employees pay into the state compensation fund. Then when someone has an occupational disease they file a claim for compensation with this fund, the state fund. The state fund investigates it, and if they think it's deserving they pay them an amount established by Colorado law. They got worried about the number of lung cancer deaths among uranium miners, because a lot of uranium mining was done in Colorado by very small mining companies. The fund authorized Woodward and Fondiller to do a study and give them a report as to what they could expect in the long run.

Well, they came up with a report which forecast all sorts of horrors and forecast the rate of deaths that would go on for the next twenty years. It looked as if this would break, actually bankrupt the Colorado compensation fund. Well, things didn't turn out that badly. The rate began to decline sooner than they had anticipated. But this report was given to Congress at the hearings and got a lot of publicity in the newspapers and other media. It was a really very adverse thing for a while, but in two or three years it began to be obvious that they had overpredicted.

Problems Inherent in Improving Safety Standards in the Mines

Chall: Were they overpredicting on the basis of what little information they had at that time, or, when the number of cases went down, was that because the standards had been tightened about uranium exposure in the mines? Was that a factor?

Swent: Well, exposures were declining very fast anyway.

Chall: Why is that?

Swent: Well, there was more knowledge. As knowledge became available--

Chall: So the mining practices changed.

Swent: Yes, and particularly after 1960 when the first results of this study were published. I was busy all this time checking things and poking holes in them and prompting things. I was kind of a thorn in the Public Health Service's side for a while. But we never stopped trying to improve things in our own operation, even though we didn't agree with their findings. We realized that there was a hazard, we just didn't think it was as bad as they painted it, particularly at low levels of exposure. But we never did let up in our efforts to improve from 1960 on. I remember I went out to the mines once and gave a safety talk there; I just went over this whole subject.

One of the problems that we had in the industry was that basically neither the miners nor most of the people working in the mines believed this at all.

Chall: They did not?

Swent: No. It's difficult. The radon and radon daughters are invisible and odorless; there is no way you can see them or feel them. And the ventilation requirements that had developed made it very cold in most of these mines. The mines in Grants, in Ambrosia Lake, for instance, had elevation at the surface of 7,000 feet, and the mines were less than 1,000 feet in depth. So you were maybe at 6,000 feet elevation and had a fairly cold winter. In wintertime particularly, with these additional ventilation requirements it got very cold underground, to the extent where we would have ice forming in the shafts, and we had to put heaters on. We had natural gas heaters that we would put on to keep the ice from forming in the shaft. But you couldn't keep it very warm underground. People were running around with great big jackets, heavy jackets and ear muffs and heavy gloves, particularly on the

main levels, in the main haulage ways where the air was moving pretty fast.

In a working face where the man had ventilation with vent tubing, one of the things that you always were prodding the men to do was to keep the vent tubing up close to the point where they were working. Human nature I guess is prone, as you advance a face, not to bring up the ventilation tubing. You would reprimand them for that and every once in a while you'd get an answer like, "Well, gee, I'd rather have lung cancer twenty years from now than pneumonia tomorrow."

It took a long time before the men themselves believed it. That was why I went out and gave this safety talk to try to convince the staff that this was true, that it did cause lung cancer. I was convinced that it did cause lung cancer at the higher exposures and that we needed to get the levels down. And I think that did a lot of good. I chided our mine superintendent once for not getting levels down; he had sort of reached a plateau. They had come down for a while and he leveled off at about between two and three working levels. I said, "Gee, why aren't we getting these down any lower than this?" "Well," he said, "that's what everybody else is doing. Why should we spend more money doing it?" As I say, he didn't basically believe it.

So that was one of the big problems that we had. Of course, management had suffered from that in the very early days, in the days back, say, in the fifties. Even management didn't believe all these stories.

The Federal Radiation Task Force Recommends Revising Working-Level Standards in 1970/1971

Swent: So, as I said earlier, the Federal Radiation Council reviewed the whole thing again in 1968. They had a new report from the Public Health Service and it really wasn't any different. They had a few more lung cancer cases, but the statistics weren't much different. Without the prompting of the hearings and somebody looking down their neck they went back to ignoring the smoking--

Chall: Oh, really?

Swent: --and ignoring what we called the OHR, the other hard rock mining exposure. We always raised this issue but they disregarded it, because it represented very severe complications. To calculate these correctly just introduced more uncertainties into the whole

picture. They had their own mission and that was to prove something: originally the study was designed to show that there was an association between exposure and lung cancer, and they did a pretty good job of proving that.

But anyway, late in 1968 the Federal Radiation Council came out with another memorandum to the president in which they announced the intention of going to four working-level-months as of January 1, 1970. Now, the staff did not recommend this; the staff was going to leave it at twelve. The Council met; that is, the cabinet secretaries or their representatives who were involved had met and approved the staff finding. Willard Wirtz personally drafted a different one announcing this four working-level-months business, and went around to the secretaries, involved himself, and talked enough of them into signing his version that it went through. So this was a very personal effort on the part of Wirtz. And the staff was furious over this, at being bypassed this way.

But at any rate, the memorandum came out announcing that the industry was being warned that the change would be made as of December 1, but that a review would be made at the time. A big study was started, another study, and a lot of data was gathered. And in fact it didn't make it by January 1, 1970. They didn't get the new version of the Public Health Service report done on time, so they deferred action until July 1, 1971.

In the meantime Nixon reorganized the set-up and put the Federal Radiation Council functions under EPA. When the final surgeon general report came in from the Public Health Service in 1971 the EPA simply agreed to stay with what the Federal Radiation Council had recommended. The four working-level-months then went into effect on July 1, 1971. But by then everybody had lowered exposures to where they didn't really have any difficulty complying with it.

Chall: It had taken four years to battle this out?

Swent: Yes. The Labor Department in the meantime had been giving variances. Of course things changed. In 1969 when the Nixon administration came in and George Schultz became secretary of labor we immediately went to him. Actually Wirtz had published a series of changes in Walsh-Healy Act Safety and Health regulations three days before the inauguration of the Nixon administration. George Schultz, after the Mining Congress had talked with him, suspended these for ninety days to give him a chance to review them. Then we went to Assistant Secretary of Labor James Hodgson who had come from Lockheed. The radiation business was under him. We had a good talk with him. He had been in the Homestake Mine at one time

and knew where it was and that sort of thing, so he had a better rapport with industry than Willard Wirtz's staff had had.

But bureaucrats as they are, the bureaucracy below him stayed on and kept things much the same. But they did negotiate these variances. We had a lot of sessions with them negotiating the terms and conditions and what really you would have to do to get a variance. In the long run the Labor Department really was not a problem to the industry, although it took a lot of haggling back and forth over these variances.

Chall: Did you spend a great deal of time dealing with these bureaucrats, these individuals?

Swent: Yes, I really did. Between being on that task group and the Federal Radiation Council and dealing with the Labor Department, and also balancing the ball of the safety standards at the same time, I spent an awful lot of time going back and forth to Washington.

I sort of jumped ahead there. In 1968 Wirtz, I think, changed his standard from the 3.6--when the FRC standard came out announcing that they were going to go to 4 working-level-months in 1970, he then changed a Department of Labor standard from 3.6 to 4 to conform and said that they would continue giving variances until the 4 came into effect. And he decided that the subject was important enough to hold hearings on it. Up to that date hearings had not been held on the standards. He had said that it was an urgent situation that needed regulation right away and didn't require a hearing. But he was finally forced into holding hearings in, I think, November of 1968.

The International Labor Organization Conference on Mine Health and Safety, 1968

Swent: I had a conflict on that. I prepared written testimony and submitted it. In the meantime I had been named, through the Mining Congress and the U.S. Chamber of Commerce, to be one of two employer delegates to the International Labor Organization meeting on safety and health in mines other than coal mines in Geneva, Switzerland in November of '68. The other employer delegate was Bob Beverly of Union Carbide, from their uranium division in Grand Junction, Colorado. Bob and I had worked a great deal together on all these subjects and knew each other very well.

The ILO, which was what the International Labor Organization was known as, is a quasi-United Nations organization. It had been started long before the United Nations. I think it had been started under the old League of Nations, then when the United Nations was formed, it came under them. The format was that there were to be two employer delegates, two labor delegates, and two government delegates from each country to meet in Geneva for two weeks and to consider certain questions that this staff had prepared. There had been a prior meeting in 1957 on the same subject. I didn't know about it at the time. When it occurred I didn't even hear about it, but I heard a lot about it later. This was a follow-up.

One of the things that they had wanted to consider was radiation in mining. That was why Bob Beverly and I were selected, because we were knowledgeable on that subject. One of the U.S. government delegates was Roy Stott from the Department of Interior, who was also involved in the radiation standards. The other delegate, and I forget his name, was from the Department of Labor. Now the labor people did not name any delegates. The U.S. AFL-CIO wouldn't send anyone.

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Chall: You had been attending many committees and testifying, and you had been on task forces and all that sort of thing, but I gather that this was one of the biggest meetings of its kind you had ever attended.

Swent: Yes, yes. I forget how many people were there, but it was a pretty substantial group when they were in plenary session.

The first thing that happened was that when we got to Geneva and registered in the hotel, I got an invitation from somebody who said that he was a representative of the International Employers Association. They wanted to have a meeting of all the employer delegates at such-and-such a time before the official opening of the ILO meetings. It was set up for a late afternoon. So I went to wherever this was set up and I got there fairly early.

They had given out a list of all the employer delegates, and I was looking down the list and just as I got to Mexico and I saw that one of the delegates from Mexico was Luis Guzman Carreon, he walked in. I instantly recognized him, of course. He had been the attorney for San Luis Mining Company when I left. I had known him quite well. It turns out that he had also been at the 1957 meeting and was quite knowledgeable about their procedures. The other delegate had been Ken Kellar of Homestake. I had never heard Ken talk about that.

So I greeted Guzman Carreon and found out he was staying in the same hotel we were at, so we invited him to dinner. We really spent a great deal of the next two weeks together. He had not brought his wife so he was alone. I took Lee with me. In fact, we had gone early and we rented a car and drove around Switzerland for a few days before the meeting began.

Anyway, we had some very enjoyable times. Having been at the previous meeting, why, Carreon was selected to head up one of the task groups. I think that's what they called them. My letter there [pointing to a stack of papers on a nearby chair] has the exact title.

Chall: I think I saw his name in this report that you made.

Swent: I served on the same committee. Basically they divided all the delegates into two groups to deal with two different issues, and Bob was the one that got into the occupational health and safety and the radiation issues. I went over and attended a few of those meetings but he did all the work in it. Luis Guzman Carreon was made chairman of the employer group in our half. I worked with him and I generally sat right alongside of him in the meetings.

I was one of the few there who could handle all three languages that various kinds of information were printed in--English, French, and Spanish. Now, there were other official languages, and they had simultaneous translation going on. You had these little headsets with a dial that you could dial the language you wanted to listen in. But each day the previous day's reports were mimeographed and appeared in just those three languages, and I was the only one that really understood all three of them.

Chall: I notice that it made some difference in the translation toward the end, that you called them on that.

Swent: I called them on one change of wording that they had used, from forecast to plans. That wasn't very significant in many ways, but it was the type of thing you had to be watching out for. Basically, a staff person would start discussions off and tell you what the questions were that they needed decisions and recommendations. And it was just very, very clear that they were all very, very leftist. The job of our committee was to try to bring all of these things back a little bit to be more realistic.

Chall: Well, your subcommittee had a rather interesting title. "The Subcommittee on Employment and Conditions of Work in Mines other than Coal Mines in the Light of Fluctuations in the International Mineral Trade." Did that have something to do with trade and exporting and importing? What did that mean, "in the light of

fluctuations in the international mineral trade?" What did it mean to the organization of employers and let's say the East Bloc countries?

The Political Aspects of the Conference

Swent: Well, basically the labor delegates and the East Bloc countries could be considered alike--instead of having three different representatives there, that is, labor, employers, and government, they essentially behaved as labor. In a way they had more unanimity than those of us, say, from the United States or Mexico or other areas. But what all this was about basically was to try to set up some general guidelines that countries would be expected to live up to in working conditions, like what a normal work week should be and what basic employment benefits there should be.

Many of the things that were proposed were quite impractical. Of course the lesser developed countries at that time, particularly, had very little experience with industrialization and with industrial employment. The sort of things that they wanted had already been tested in the western countries and found basically not to be practical or possible.

Chall: What kinds of things?

Swent: Well, as I recall they wanted guarantees on employment, whether a mineral was produced or not. You know, if somebody went to work in a copper mine in Chile, why, he was supposed to have a lifetime job, whether copper was produced or not, and that sort of thing. A lot of the black countries from Africa particularly were just getting into this. They were really quite impractical. The Chileans weren't. I shouldn't have used them as an example because--

Chall: Yes, because they had had a lot of experience.

Swent: They had been at it for a long time. The black countries particularly were some of the problems. But they would listen at that time, at least; they listened to the countries that had experience in industrialization. I don't recall a lot of the detailed discussions, but I do recall that it was a constant battle with the staff and what they were proposing. Then they would leave it for discussion, and we would discuss it in employer delegate meetings. All of our findings would go to a plenary session where all three forms of delegates met and voted on things.

Chall: Were the plenary sessions pretty hot? I guess there were a lot of people talking about various matters.

Swent: Yes, but they were pretty well organized and orderly. I think we had probably hotter discussions in the employer meetings than we had in the plenary sessions. The plenary sessions were more like a parliamentary body.

Chall: Was there much difference among the employers, even the International Organization of Employers? I don't know who all were mining--Italy, France, Spain, and the United States, for example, and Mexico.

Swent: No, basically those countries were pretty much allied in their viewpoints. France and the British and the United States, and Mexico--we all got along very, very well. The principal differences were with the lesser developed countries; particularly at that time there were a number of them just developing in Africa. There were lots of black delegates there. We had some problems with the Russian delegates, but not too much because they couldn't talk English very well.

You didn't have to speak English, but basically the language of the discussions in the employer delegates was English. They would say something and nobody knew what they said [chuckles] except for the simultaneous translation. The simultaneous translations left something to be desired. They worked fine as long as somebody had already submitted a written version of what they were going to say and the person doing the translating had a chance to look at it ahead of time. But when they were translating from a person speaking extemporaneously, then the translations aren't always accurate.

Chall: How large were the subcommittee meetings?

Swent: Oh, probably forty or fifty people.

Chall: That then makes it difficult to have a discussion.

Swent: Well, we did pretty well, I think, on that. Luis Guzman Carreon having been through it once before did an excellent job, I thought, of conducting the meetings. Anyway, it was a very, very edifying experience, over all. I learned a great deal, and in later years when the United States refused to pay the dues and dropped out of the ILO for a few years because of their leftist tendencies, I was quite in accord with the U.S. actions. And apparently that had some effect: the ILO staff did mend its ways, and the United States came back in.

I've had no further direct contact with them after that 1968 experience, but it was a very, very interesting experience. And in the radiation end, of course, a lot of false information had been gotten abroad. The Woodward and Fondiller report had gotten the acceptance and not some of the more conservative findings, things that we had found. It was Bob Beverly's and my job there to kind of enlighten these people a little bit as to the actual developments--what was more likely the truth.

One of the interesting developments there was that for the radiation sessions France sent Dr. Pradel, who headed up the French effort in the French CEA, which is their Atomic Energy Commission. He headed up the studies on the effects of radon daughters on the French uranium miners. There are a number of uranium mines in France, and in fact I had visited some of them in 1966. Dr. Pradel came to Geneva to be at some of the sessions. I had been very anxious to meet him, because he probably had more experience than anyone with the radiation problem and had more records on it. We were interested in what he had to say about how serious a problem it really was. He didn't have a great deal really to offer but said they were working on a study, and he gave us some preliminary results which were really inconclusive. Bob Beverly and I had a private meeting with him outside the sessions and had a very good discussion. Then I kept in touch with him over the years through correspondence. He headed up a group that came to visit in the United States and came to Grants. I went down to Grants to take his group underground and guide them around some time in the 1970s, I've forgotten just when it was.

Chall: Was his method of correlation and statistical analysis similar to yours?

Swent: Well, they have a tremendous problem in France in that death certificates are not a matter of public record. They have to get the consent of the next of kin before they can get a death certificate. In the United States generally they're considered to be public record after the individual has died.

At any rate, in 1984 they finally came up with their first study results. They presented them in a paper at a conference given in Toronto. By then Dr. Pradel had retired from their service and it was given by a Miss Tirmarche, although I think she listed him as a co-author. Still, they had so few people actually that when you get in and analyze it, they had not very many uranium miners compared to the United States. They had maybe something on the order of between one and two thousand, whereas we several times have had close to ten thousand working at one time. No, maybe not that high, probably seven or eight thousand, but anyway it's a big difference in the number of people we had working and they had

working. But there is an indication that they have an excess of lung cancer in their group, and their radiation levels had been much lower than ours. They had controlled them right from the beginning, and there's an indication that they have a small excess, but they didn't have any good data on exposure categories. The paper has not been really definitive.

Chall: Did they take into account smoking? Because people in Europe smoke heavily.

Swent: That's right. I don't think they did. This has generally been ignored until the Mining Congress has revived it here in the last few months. We just did some very extensive research and spent a lot of money on the subject. But this is jumping ahead too much.

Chall: Yes, I see. Okay. Did the plenary sessions and the committee meetings that you had take up most of your time, or were you able to relax and have some leisure time?

Swent: Oh, we had some leisure time. The sessions were in normal business hours, maybe even slightly less. No, we had spare time. Of course it was November and we never did see the sun in Geneva; it was just foggy and cloudy all the time. But we had some good times. My birthday is in November and I was there for my birthday, so Bob Beverly organized a big birthday party for me out at a very nice restaurant overlooking the lake.

Then after the sessions were over we were complaining that we hadn't seen any scenery there, that it was supposed to be very pretty but we couldn't see any Alps or anything. They told us to take a streetcar, to get out to the French border, cross the border, and then take a teleferique up to a mountain top. We did that and we got above the clouds, and it was just beautiful, absolutely marvelous scenery.

Chall: Was there anything that you could use in the way of experience from this conference?

Swent: Well, I came back feeling very strongly about, as I say, the leftist tendencies of the ILO. At that time I kind of equated it to the United Nations and I had some very serious discussions of it with the U.S. Chamber of Commerce representative in Washington, D.C. He was the one that urged me to write a complete report on it, so I did. That's what's in that letter that you have there.

Chall: I see. I was interested that there would be in the Chamber of Commerce an ILO staff advisor. Does that mean that Mr. Gilbert followed the work of the ILO consistently, but also had other hats?

Swent: Well, I think he had more than that to do, but I think that was part of his job, yes. Since then there's been a third conference on mines other than coal mines. I don't even know who went to that. They named other delegates and I don't even know who they were.

Chall: Under the auspices of the ILO?

Swent: Yes, there was a third one a few years later.

Chall: Do they have them every ten years? Is that about it?

Swent: That's about it, yes. And for a while the ILO did mail me periodically follow-up material, but that's long since ceased. No, it was a very interesting experience, particularly seeing some of the Europeans who had been fighting many of these battles year in and year out, the French people and the German people there and the Belgians, who all have tremendous industrial concentrations. They were extremely knowledgeable and had been through lots of these sessions, very obviously been through them, and knew all the arguments in and out and all the procedures in and out. They were very capable and handled themselves very well. The Frenchman from the steel industry was a Mr. LeBlanc and he was just very, very helpful. An elderly man who apparently had been to many, many such conferences.

Chall: I see. You mentioned that the government people didn't really participate very much.

Swent: No.

Chall: Is that because they just don't feel that much will come out of this or they'll just go their own way over time? Why do you think that was true of the government delegates?

Swent: I think this is sort of routine with them. They didn't regard it as anything significant. Bob Beverly and I, this was our first time at it and we took it a lot more seriously, I guess, than they did. I think Roy Stott of the Department of Interior took it fairly seriously, but the Department of Labor man, I can't even remember his name because he was so-- it's in the list of delegates here but he was very little help.

Chall: Oh. Even if you sought their help they didn't provide it?

Swent: Not much.

At any rate, we had also taken our daughter Jeannette with us. And after the sessions were over, we went up to one of the passes

where there was a lot of skiing. I think it was St. Bernard pass. We went up there and had to take the teleferique up in two stages, I think, and enjoyed it very much. But coming back down, we had parked our rental car in a parking lot, and walking to the car Jeannette slipped on the ice and fell down and broke her arm. It was just a green break; it wasn't a full break. She was right close to the car so we got her in the car and drove back into Geneva and went to a clinic there and got to see what an emergency room in Europe is like. They took very good care of us.

I had to get some insurance forms filled out. This is the first time this ever happened to me--it has happened on occasion later--but they charged me for filling out the insurance forms! [chuckles] So they x-rayed the arm and put a little cast on it and she was all right after a few weeks. It wasn't a serious break. It wasn't completely severed, it was just what they call a green break. But it was very painful at first.

Chall: Yes, it spoils a holiday, too, a bit.

Analyzing Other Research on Radon Daughters, 1968-1971

Swent: Well, we have to come back to the United States now. I'm trying to think what happened in all these fields in 1969. In the safety field 1969 was the year that standards were finally published for the federal Metal and Non-metal Mine Safety Act. It was labeled a safety act but it actually included health matters. Among the things that the Department of Interior did, of course, was to adopt the twelve working-level-months standard from the Federal Radiation Council guidance. And they also put in a standard saying that if in the future the Federal Radiation Council changed its guidance, why, the regulation would automatically be changed to follow the Federal Radiation Council dictum, so that it would happen automatically without having to go through adoption of another regulation.

Chall: And in '71 it was changed?

Swent: Yes, it did change to four. Then in '69 there were congressional hearings held again, but these were much briefer. I testified again, and among the things that I was able to show then was the effects of smoking and the other hard rock mining. This got some attention from the committee, but it never got much attention from the Public Health Service.

Chall: Is that right? That was based on your own research?

The Smoking Factor

Swent: Well, what I did was take the data that they had presented in their study, the updated data, and then took the Donaldson committee's 49 percent--

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--higher expected lung cancers due to the smoking factor. I recalculated their tables and then I also added in the other hard rock mining experience because this had been published. They had given all the data out on that, on each case, so that it was possible to do this. These tables that I produced showed that there still was no excess lung cancer among those exposed to less than 120 cumulative working-level-months. And 120 working-level-months would be thirty years at four working-level-months per year. As I say, this caused a little bit of a stir on the Senate or the joint committee panel, but the Public Health Service people didn't particularly comment on it.

In 1968, there was another review by the National Academy of Sciences. They published a report in August of 1968. Let's see, how many cases did they have? [looking through the report] They're not numbered here. Sixty-two cases of lung cancer in the uranium miner group versus ten expected, which is very highly significant. But they showed, for instance, eight observed and only 2.5 expected in the less than 120 working-level-months category. As I said, the work that I did would eliminate that excess. That shows quite a few. That showed four-to-one observed versus expected in that class. We were able to show with the smoking correction and the inclusion of exposure in other hard rock mines that there really wasn't any excess in the less than 120 cumulative working-level-months. Because what that other hard rock mining did was it added to people's exposure and pushed many of them over 120 cumulative working-level-months.

Economic Factors

Swent: At any rate, this was an intermediate study. There was also an economic analysis done by a corporation named RMC, Resource Management Corporation. They did it for the Federal Radiation Council, but their conclusions were very vague, I thought, on the economics. They said that really to meet a four working-level-months standard, the industry would have to reorganize in the way they approached the problem and some things like this. They

presented cost data, but they warned that it was subject to lots of variations and errors, and it was difficult to predict based on that. I don't think they pointed it out, but we always argued that the costs went up in percentage. The further down the standard was pushed, the higher their costs would rise in percentage, so that you would get to a point of diminishing returns.

But this particular economic analysis wasn't very good. For the 1970 study the Federal Radiation Council commissioned the A. D. Little Company of Boston to do an economic analysis. And they really went into it in depth and did a very thorough job, I thought, in many respects.

Chall: Did they come out with figures that you felt were accurate, as accurate as you can be in that kind of situation?

Swent: In retrospect I think it was probably a pretty fair analysis. They analyzed it in terms of trying to come up with an increase in the cost per pound of uranium for the required additional ventilation and what its effect would be on the cost of generating electricity. They showed that it really was not a significant cost. The problem was basically how you passed it on. If the mining industry was to incur this cost, how you could pass it on to the utility industry, because many contracts had been entered into. At Homestake I had warned them, and all the contracts that we made with utilities included an escalation clause based on this possible rise in cost, but not all the companies had done that.

Chall: You could certainly see it coming over a long period of time.

Swent: Yes.

Chall: But I suppose the problem in terms of federal regulations would be to balance out the cost to the industry versus the cost in lives and medical attention and insurance and all of that sort of thing.

Swent: Well, at least in the work I did, I never tried to say that we wouldn't spend money to save lives. This would have been, I thought, a very serious mistake and a poor position to take. We argued that it would cost money, that we didn't know how much. We thought this should be determined before the decisions were made, but it never really was. Although I guess A. D. Little did a fair job on that.

Chall: It would vary, too, from company to company, wouldn't it?

Swent: Oh, tremendously, yes. It would depend on the grade of ore and all they could come up with was an average. The other argument was, of course, the conservation of resources: that every bit of cost

added to the cost of resources would make a certain amount of the resource unavailable; it wouldn't ever be mined.

Chall: Oh, I see.

Swent: But we were very careful never to argue dollars versus lives. We always were working towards lowering exposures as much as we could. I will show you a chart which shows how they declined, how rapidly the exposures declined.

Chall: At Homestake?

Swent: Not at Homestake, in the industry as a whole.

Then in 1970 the Federal Radiation Council had the National Academy of Sciences review the U.S. Public Health Service findings and report to them on it. I got hold of an advance copy of their report--a summary report, not the whole report. The whole report was pretty voluminous, but they had a little summary report of about four or five pages. I got hold of this about a week or so in advance of its release and copied it and sent it out to all the uranium companies that I was working with in this. This got back to the staff of the Federal Radiation Council. They were very upset about it, of course, because it wasn't supposed to be public yet. They tried to get me to tell where I'd gotten it, but I wouldn't tell them.

Chall: Were you critical of it?

Swent: No, I just sent it out, distributed it so that people would know what was coming. That was in early '71, I guess.

I'm sort of jumping around in time here.

Chall: I'm wondering, are you planning to develop the history of these various studies from year to year? Is that your plan? Is it significant what was going on from year to year? We started at about '65 or '66 and we've gone now through '71.

Inspecting the Mines for Compliance with Exposure Standards

Swent: Yes, well, from '71 on it was fairly quiet for a while. Radiation exposures were gradually reduced and the four working-level-months came into operation. Everybody was generally able to comply with it. There was a flurry and we had several sessions with the Department of Interior. There were a number of operators that

weren't doing a very good job of the record-keeping. The Department of Interior got a little bit frustrated over this, and didn't know quite what to do.

We had a session with them once and suggested that they go out and audit these operators. They had the right to examine all these records. They were complaining that when they went into a mine with their inspectors and took readings, their readings indicated that the exposures that the company was reporting or recording must be in error, must be too low. So we suggested that they actually go out and audit the records and check the thing right from the very beginning, check the readings and the time determinations and all this and find out how they'd done it and analyze the result.

Well, they did undertake an audit program, but it was somewhat fallacious. Again, what they did was they would go into a mine, and they selected those that they thought were the poorest as far as compliance with the regulations was concerned. They would go into the mine and do an intensive two- or three-day survey of all the working places and get readings in them, then average the readings and multiply by the number of men, and then come up with overall exposures and compare them to what was reported by the industry.

The Department of Interior Reports on Mine Safety, 1980: Swent's Critique, 1981

Swent: They ignored the individual worker's time distributions because they didn't have time to look into it. So they just didn't take into account how men spend their time. They came up eventually with a finding. I didn't realize for a long time what they had done, but under the federal Metal and Non-metal Mine Safety Act the Department of Interior was required to make an annual report to Congress. Usually this report was a year or two late in coming out. The 1987 report, for instance, isn't out yet, and this is May of '88. They usually came out about a year late. They were printed up and available to the public, but this particular one I missed. They came out with it, and the department findings showed exposure estimates four to five times as high as those reported by industry. I didn't find out about it for a year or so, and I was really upset, because I thought we were doing a good job. We were never audited. What they had done was to audit those that were not doing a good job, and there were about 20 mines out of some 500. They characterized all 500 based on those 20.

Chall: I can't imagine statisticians or researchers doing a thing like that.

Swent: Well, these weren't knowledgeable people. That's really what it boils down to. They were zealots. There was one fellow there named Max Slade who had worked for Kerr-McGee as a miner in Grants, a very smart fellow. And he had then gone to work for the Department of Interior as an inspector. He worked his way up from inspection and finally wound up in the Washington staff as an expert on uranium mines. He had not been a particularly good employee, but he was a real zealot for the working man.

When I finally caught up with these figures I did some calculations with them and used the average readings that they had gotten. I went and told Max Slade, "You must have assumed two-thirds occupancy on the part of people, because that's what the arithmetic showed. Is that what you assumed?" He said, "Yes, that's right." Now that's just an outright assumption. We had all sorts of turnover in the industry. Some people would work one day, some people would work two or three months, but a lot of them didn't work two-thirds of the time. Two-thirds time of occupancy was just way too high. As I say, they picked out the twenty worst mines and assumed this two-thirds occupancy and then applied it to the whole industry.

Chall: I'm surprised somebody else didn't catch that in the industry.

Swent: Well, we caught it, but it was way too late by the time we caught it, because we didn't see drafts of these reports in advance or anything.

Then the Department of Interior came out with a paper. In 1981 there was a conference in Golden, Colorado, on radon daughters. It was about a four-day conference in which people presented papers and analyses. The Department of Interior people presented a paper in which they criticized the industry reporting and characterized it as low.

Up until 1970 there were reports published by the Department of Interior, the Bureau of Mines, giving pretty good representative data of the industry. They classified the radon daughter readings by levels and by size of mines and things, and they showed how many men were exposed at one level and how many at another level. But when they converted to the four working-level-months and all this, the Bureau of Mines stopped publishing this data.

So Bob Beverly and I, in 1970, decided that the industry should gather exposure statistics and publish them. We did this for the Atomic Industrial Forum. I sort of headed it up. We would

write to the different mining companies and ask them to submit their exposure statistics for each calendar year, and I would work up two tables. One was a table of all the people who worked and went underground. And we divided the exposures up into one working-level-month increments, zero to one, one to two, two to three, three to four, and so on. Then we divided the labor force into four groups: production people, maintenance people, service people, and salaried people. The second table was just of employees who worked 1,500 hours or more. Fifteen hundred hours is roughly three-fourths time. There are roughly 2,080 working hours in a year of 40-hour work weeks. You could tell what the difference was between the number of total employees and the number of people who worked that much time. That gave it a little feel for the occupancy factor.

So in the 1981 conference, they tried to show that these figures that we were putting together were wrong. They came out with a paper which we had no opportunity to reply to because we didn't know it was coming. That was the last one they published, by a fellow named Wade Cooper, in which he is arguing that the AIF, the Atomic Industrial Forum figures were incorrect.

I think I'd better quit at this point for the day.

Chall: We're very close to the end of the tape anyhow, so that's just fine.

The American National Standards Institute

[Date of Interview: June 3, 1988] ##

Swent: For today's session I made notes to say a little bit about the ASA and the ANSI groups. ASA was the American Standards Association, which was the standards association that existed at the time that I got involved in all this, 1967. Later they changed their name to USASI, which was United States of America Standards Institute. Then later they changed it to ANSI, American National Standards Institute. And that's what's prevailed in the long run.

Chall: Did those changes of names denote any change in function or attitude?

Swent: I'm not really quite sure what all this name change was about. I wasn't involved in it. All I know is I'd go to the meetings and they'd say, our name is now this.

Chall: I see, okay.

Swent: But basically all of them were the foremost standards setting organizations in the country. They set all sorts of standards in all sorts of fields. They had a uniform procedure for doing this. They would form committees for the various specialties, where standards were needed, various fields. They had very broad representation on their committees.

Chall: Did you work on them? Was this something that you were involved with?

Swent: Yes, I was involved on the N7 Committee of the ASA, and then later the N13 Committee under ANSI and USASI. These were to set standards for radiation protection of uranium miners.

Chall: I think we covered the N7.

Swent: Yes, well, the N13 became the same thing. But the main thing I wanted to point out is that they were prestigious organizations, operated on the consensus principle. They didn't adopt anything that everybody didn't agree to. The representation on these was very great. They didn't limit anyone from attending, because they wanted these standards to be well accepted throughout the country. The Department of Labor had a representative there; the Atomic Energy Commission, and the Federal Radiation Council attended the first meeting I was at. In fact, they sort of set the tone of telling what they wanted. A fellow named Paul Tompkins, who was the executive director of the Federal Radiation Council, very capable, he was on the staff. It had many insurance companies, a number of private companies, and altogether I think at the first meeting there must have been fifty or sixty people present.

I mention the Labor Department because at some point later on they dragged their heels about following the standards, which always was a little strange. And the Department of Interior, which did not have a representative there, followed them meticulously.

Chall: Followed the standards?

Swent: Yes, the recommended standards.

Chall: Is there any reason that you can think of about why Labor dragged its heels?

Swent: Well, I never was really quite sure about it. I think maybe it was Wirtz's influence. The man who was there was John O'Neill and he was an old-time Labor Department man. He had been there for many, many years. I think he was more stable than Wirtz was. Wirtz was,

of course, a political appointee, lasted I think for one term and was a very forceful man.

At any rate, I just wanted to point out that this was a serious effort. We came up finally with a standard. The previous standard that had come out was in 1960. That one was before the basic furor arose, although Gordon Miner had worked on the 1960 one very, very heavily in the Moab area and strongly advocated it. It was to try to head off future problems, but it obviously was not good enough. At that time there were no federal regulations at all, and it set up the standards that I mentioned earlier, I think: 1 to 3 working levels was considered satisfactory, 3 to 10 was considered an unsatisfactory condition that required correction, and over 10 was an unacceptable condition.

This was adopted by many mining inspectors as their guideline for inspecting and they acted accordingly. But then as more knowledge came out they began whittling down the numbers themselves, particularly the unsatisfactory part of it. They lowered that gradually from 3 down over the years to 1 or less.

The Atomic Industrial Forum: The Mining and Milling Committee

Swent: Another organization that I was involved in was the Atomic Industrial Forum, where I think I mentioned before they had formed a Mining and Milling Committee to represent the uranium industry. The forum is different than the Mining Congress in that it couldn't limit membership. They claimed that as a forum they had to let anybody who wanted to talk about the nuclear industry into it as a member. Of course, one of the problems that we as uranium producers had was that the bulk of membership and the bulk of the money raised by the forum came from the utilities. And basically the utilities and the uranium industry had a conflict of interest, in that the uranium industry was expected to be selling to the utilities, and anything that tended to raise a price for the uranium industry was good and it was bad for the utility industry.

Then for a while there was intense competition between coal and uranium. There were great predictions made about how uranium--and eventually atomic energy power--was going to reduce markets for coal. So at one point coal producers began joining the Mining and Milling Committee, not because they wanted to support the uranium industry but to find out what was going on. This was a little awkward for a while. I forget who was the chairman at the time, but he managed to shame them into resigning.

Another problem was that if you wanted to make a public statement on anything, you could work it up as Mining and Milling Committee, but before it could be used it had to be approved by the AIF board, and the board was composed entirely of utility people. They frequently didn't approve our statements because they felt it wasn't to the best interest of the utilities. This was very frustrating. We had some things that we thought were very basic to the uranium industry. They got squelched and we couldn't make the presentations to Congress that we wanted to.

Chall: Could you give me an example of what some of that conflict might have been?

Swent: At this point I'd have to go look it up, see if I could find one in my records. I can't think of one offhand.

Chall: I see. It would be interesting, I think. We might include that then when you edit.

The Uranium Policy Council of the Mining Congress

Swent: This reduced the effectiveness of the Mining and Milling Committee greatly. Finally--and I'm not sure of the year; I'll have to look this up, too, but I think it was probably in the late sixties or early seventies--I suggested that we really move the function, particularly the political action function, over to the Mining Congress. I was supported in this by Bud Wilson, who was president of Utah International. And the membership thought it probably was worth considering. So Bud and I went down to see Alan Overton, who was president of the Mining Congress, and went over the problems with him. So he wound up forming what is now called the Uranium Policy Council, which was sort of a major new element in the Mining Congress. I was appointed to this and later on to its executive committee when both of these were formed.

Chall: Was the Uranium Policy Council part of the congress or separate?

Swent: It was part of the congress. But it's separate in that it doesn't tangle with the lead-zinc industry or the iron ore industry and so on. The Mining Congress is organized with a bunch of major segments like this. When there's a subject that really concerns all of them, why, this has to come up to their board also. In fact, all positions, even major positions that any of the segments wants to take has to be approved in principle by the Mining Congress board.

The Mining and Milling Committee of the AIF continued to exist, but its function was greatly reduced. But it was helpful in technical things and in working up technical data, and helped in the tailings regulations and technical aspects of the mine radiation and that sort of thing.

Cost Escalation in the Homestake Mines and Mills

Swent: As all this business of the radon daughters was going on in the late sixties and early seventies, I warned the Homestake people that were trying to sell uranium about the cost implications of this and told them that they should really, in any new contracts that they obtained, try to get some escalation protection that would protect them from a sudden drastic increase in cost due to new radon daughter regulations. They did get a few companies to agree on this, but they found it was actually easier to promote and sell a general escalation clause rather than a specific one on radon daughters. In the long run this turned out to be better for the uranium industry anyway, because as time went along there were other elements of cost that escalated. These were all recognized in the escalation formulas that we worked out.

Chall: What others just besides the rise in labor and land?

Swent: Well, labor, power--

Chall: The usual overhead expenses.

Swent: All those things. Of course, labor is very sensitive; more than 50 percent of your costs are labor anyway. The power began to go up. We were on natural gas and, as you know, in the early seventies all of a sudden natural gas began to get scarce and prices went up. It got to be that our power plants, which had been very cheap producers for many years, could no longer compete with oil-fired and generated utilities, or generated electricity from utilities. So in the Ambrosia Lake area we went to Public Service of New Mexico power. Over the years they had had time to build a transmission line out from Albuquerque.

Then also at the mill we went onto the REA [Rural Electrification Administration] system. They had managed to improve their transmission facilities. They had the franchise in the mill area for Grants and the vicinity. So our engines went on standby, and over a period of years we sold several of them and only kept one or two at each power plant in order to have emergency power in case of outage.

Swent: I know I mentioned that in March of 1969 the joint congressional committee had hearings again, but I didn't go into that particularly. I did testify there and my principal theme was--there were two points. One was that we thought the industry was entitled to uniform government procedures. We pointed out that between the Department of Interior, Department of Labor, and the Federal Radiation Council, there was no uniformity and we were getting three different types of approaches.

Chall: That surely was serious.

Swent: Then I pointed out that the National Academy report that came out in '68 had said that, given some factors for correction of the results of the [PHS] study to using national death rates instead of the four-state-area death rates, and also for the excessive smoking among the uranium miners, that the combined effect was 60 percent more expected cases. So I made up some tables which I submitted to the committee, showing the effects of this 60 percent increase. They were quite interested in that.

I was very disappointed in the performance of Robert Finch, who was the new Secretary of HEW under Nixon. He obviously wasn't too well informed, but he said he'd had a "cram" course (that was the word he used) and promised that HEW would, in addition to continuing the Public Health Service study of miners that they had begun in 1952, also provide three new cohorts: one, of uranium miners who had begun work at a later time and whose exposure was less than that of the first group; secondly, a study of underground miners in other fields; and thirdly, a study of potash miners, where there's virtually no radon at all underground. Well, the middle two there, the new cohort of uranium miners and then the cohort of non-uranium miners was never done. They never even started it. The potash miners, they did do a little bit about.

The Health, Education, and Welfare Study of New Mexico Miners Uses the Grants Clinic Data, 1960-1971

Swent: This was a real problem to the Public Health Service that developed back in the early 1960s. In New Mexico we had begun a study at the behest of a Dr. [Gerald] Parkes, who had obtained an HEW grant to do a study on New Mexico miners. He selected us because of two things: one, New Mexico miners had been, generally speaking, exposed to less radiation than miners in the Colorado plateau, because the mines had all come into being at a later date when there was more knowledge; and secondly, the Grants Clinic had right from the beginning kept excellent records on everybody, gotten

their smoking histories, their prior employment, at least the way the men told it to us, and they had had good physical exams. We were giving them follow-up exams once a year. So this was considered a very good group to work with.

Then the comparison group that they were to work with were the potash miners from the Carlsbad area of New Mexico. There were seven potash underground mines there, and they thought this was going to be a good group. [chuckles] The grant was not renewed and the study was dropped about 1963, but before it got dropped lung cancer cases were appearing among the potash group before they appeared in any of the uranium group. This was something of an embarrassment.

Chall: The potash miners are certainly breathing in lots of dust and particles, aren't they?

Swent: Well, they would have some dust but it's all soluble dust. Potash is KCL, essentially, and associated minerals are NACL. All of these are soluble in body fluids and don't really do the harm that insoluble particles do.

In late 1969 the Health, Education, and Welfare people requested the Grants Clinic data. As a result of this request we set up a meeting on January 22, 1970, the anniversary of the landings at Anzio. I went down to Grants for this to discuss it. They said they would like to have this data to do other studies with and that it was good data. We tried to talk them into giving us an exchange of data, that if we gave them this data they would give us identifications and work histories on the men in their study so that we could verify their employment and backgrounds.

Chall: Did they?

Swent: No, it didn't work. They said they'd consider it and they would go back and look at it. We wanted to know how they were going to use our data. So they said they would go back and write up a proposal, which they did.

Then after the meeting, right after, we were still in the conference room there at the Homestake offices with some fellows named Joseph K. Wagner, and Carl Jensen, and Victor E. Archer, who were the three U.S. Public Health Service employees from Salt Lake City who were working on the U.S. miners study. The three of them and I met.

Well, to go back a ways, in the 1968 National Academy of Sciences report they had cut back from giving the exact day of death to just giving the year of death. This made it much more

difficult for us to track anything out of it. So I asked if they could go back to giving this specific data. Wagner asked what difference this made to us, and I told him, that we'd been able to identify all forty-nine cases in their '67 study with death certificates and date of death. By comparing death certificates and using the date of death, then we were positive that we had identified them. Wagner turned to his cohorts and he said, "I told you we shouldn't have published that." I interpreted this to mean basically that he didn't want industry learning the details of their study.

Carl Jensen who was there had been a former New Mexico Public Health Service employee, a state employee, and he knew us well. I probably knew him better than the other two, and we had a good working relationship with him, but he was not in a very good, high position yet with the Public Health Service.

So this was in January of '70. The three of them were working on, and trying to come up with, a new report on the Public Health Service group. Supposedly it was due by the end of 1970. The Federal Radiation Council recommendation of four working-level-months would then be reviewed in view of the study results. They finally finished their study in June of '71, which was six months late. So the FRC postponed their deadline until July 1. They had had to do that in January of '70.

Public Health Service Lung Cancer Statistics for Potash and Uranium Miners, 1971

Swent: They did try to use the potash data that they had obtained through this grant that had been made to Gerald Parkes and followed up on it. They did more work with it. But basically there was just too much lung cancer among the potash workers, which they finally attributed to excessive smoking. When they did this they tried to use it to compare to the rates of cancer among the uranium miners. For the uranium miners--

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--they used only the New Mexico rates. I don't know how these might have differed from the four states, but it's different. And they used what's called a proportional mortality method rather than going to a modified life table. The proportional method isn't quite as accurate, but the differences were so great that they just couldn't use it and didn't pay much attention to the results. But it bothered them that this lung cancer rate among the potash miners

was so high. It was higher in all categories: higher in people who worked underground, higher with the people who worked on the surface, and it was higher in the people who did both. The whole works was higher. So they finally attributed it in the 1971 study to the excessive smoking.

Later Wagner, Archer, and a new man named Waxweiler went into the potash miners in more detail and published a paper in which they concluded that there was no excess lung cancer among the potash miners. They used the life table method and the implication was that it was just a difference in the accuracy of these two methods. But another thing that they did--which they didn't emphasize but if you read it carefully you'll see that they did it --they changed the control population from the New Mexico statistics to U.S. national statistics, which are significantly higher. When they did this then everything came out all right.

Chall: Goodness, the machinations that you've been discussing on statistical reporting leave one kind of cold! You have to be very careful how you accept the information that comes out of these agencies.

Swent: Yes, you have to read carefully.

The 1971 report came out in a pretty fair-sized book--this is it here--and basically they had by then 70 cases of lung cancer in the study group versus 11.71 expected. That's total, in all exposure categories. But in the less than 120 working-level-months category they had 1.81 expected versus 1 observed. So there was no excess in the low exposure category. The excesses were all in the higher exposure categories. Some people talked about 120 working-level-months being safe, although this may not necessarily be true, depending on smoking habits. But the figures were there, so they took the 120 working-level-months and divided by 30 years as a lifetime of working, and said 4 working-level-months should be safe.

In early July the EPA, which now had taken over the FRC functions, decided to go on with the 4 WLM as proposed, effective July 1, 1971. That's been in effect since 1971; this is now 1988. As of today it's still in effect.

The effect on exposures was not very great because by then the industry had come down in exposures very drastically. Here's a chart that I've kept over the years. This shows the average working levels per miner. You can see that it comes down very, very low. But it was low even before the 4 WLM went into effect. In 1970 it was maybe .3 and it eventually got down to something on

the order of .15; between .15 and .13 is where it's been varying ever since.

Chall: Could I copy this? Do you have an extra one?

Swent: Here's an extra one. That's the original. And these are the numbers that that's plotted from.

Chall: Are they still doing tests though on the cancer rates in the mines using these basic statistics?

Swent: Oh, yes. The Public Health Service study has been continued. Victor Archer retired and it's now been taken over and is being followed by a younger fellow named Robert Roscoe in Cincinnati whom I'm acquainted with. We've had lots of talks.

Chall: So in a sense then the four working-level-months is now the standard?

Article in Health Physics, 1973, and Follow-Up, 1975/1976

Swent: Yes. There have been a number of developments, though. For several years after this decision of EPA there was little activity in the field. This book, this report was written by--Frank Lundin was the lead author and Joseph K. Wagner and Victor E. Archer were the assisting authors. They published an article in 1973 in the Health Physics magazine in which they gave a lot more data. It was extremely helpful. They listed all the cases and gave a lot of detailed data on them.

Chall: Is that left column names of people?

Swent: Well, they didn't give names. I filled them in; I identified them. But they gave each man's smoking history and years since he'd ceased smoking if he became a non-smoker, how many years he did smoke and what kind of cancer he had, the year in which it happened and how old he was when he died, the years of non-uranium hard rock mining, (which were very important and had been sort of swept under the rug before this) months of underground uranium mining and the period in which the underground uranium mining took place, the estimated cumulative working level months, and the cell type of the cancer, how many pathologists had examined it, the methods of diagnosis such as x-rays or biopsy, sputum, autopsy, that sort of thing. And they came out with several pages of this data. Eventually I was able to identify virtually all of the men. There are a few that I still haven't, because when they gave just the

year of death sometimes more than one person died in that year that we knew of. It's hard to be sure which one they're referring to there. But I probably identified 90 percent of them.

That and the book that they published became the bible for many years. Then somewhere around 1975 or '76 Victor Archer published a paper with follow-up of this group through September, 1974. But his group of workers had been broken up by then. They had closed the Salt Lake City office, except for Vic Archer. Vic Archer would not leave. When they tried to close the office he said, "Well, I'm not leaving Salt Lake City!" So they left him. Since he'd had so many years with the Public Health Service they did let him continue with a small office in the post office building. He had one secretary and a couple of rooms for storage of materials and records and an office to work in. They let him do that until he retired.

Chall: I see, so he continued.

Swent: He continued, but he was on his own. He couldn't do a lot of the computer work that had been done before by these other fellows working with him. So what he published in 1974 was a follow-up. It gave the overall mortality and expecteds versus observed. But he didn't divide it up into exposure categories, so it was of no particular help on resolving the effects of low levels of exposure.

The Public Citizen Petition and Law Suit on Uranium Mine Working Standards and its Ramifications within Government and Industry, 1980-1984

Swent: Then in 1980 the Oil, Chemical, and Atomic Workers Union and a Ralph Nader organization headed up by a Dr. Sidney Wolf called Public Citizen filed a petition with the Mine Safety and Health Administration (that we usually call MSHA, in the Department of Labor by then). They requested an emergency temporary standard of .7 of a working-level-month per year and a whole bunch of hygiene items such as that the company launder all employees' work clothes, bring everybody out of the mine for lunch, things of that nature that would have been extremely difficult and costly to do and would have raised all kinds of havoc with production and orderly mining.

The Unsatisfactory National Institute for Occupational Safety and Health Reports

Swent: At any rate, they filed this petition with MSHA, and MSHA sent them an answer after a few months, saying that they had discussed it with NIOSH [National Institute for Occupational Safety and Health] and requested NIOSH to give them a report on the matter, and that until such a report was available they would not act on the petition. But NIOSH hauled off and wrote a very, very quick and dirty analysis--it was very one-sided--which they gave back to MSHA. It was so poor that MSHA said, "This isn't good enough. It hasn't been reviewed by people knowledgeable in the matter outside of NIOSH. We can't accept this as the final word." So they sent it back to NIOSH to do a better study and one that had been subject to peer review, by people outside the agency.

So they then contracted Dr. Archer, who had retired but was working at the University of Utah now, to do this. I guess about 1983 or so he came up with a very voluminous report which was then sent out by NIOSH. They didn't give it to MSHA, they sent it out to a number of people that they selected and hired as consultants to review this. I was one of them.

Another one that they selected was Robley Evans. Robley Evans was a grand old man of this whole field, a very, very capable fellow. He's the one who had done the radium dial workers work initially at MIT and had gotten into this. In his later years after he retired from a professorship at MIT he became a consultant to Kerr-McGee. As such he began to lose reputation because they now figured he was tarnished. But he was still a very marvelous gentleman. He's still alive but not active.

Chall: How did you find that report?

Swent: Well, it was very poor. I wrote very lengthy comments on it and so did other people, and as a result nothing more was ever heard about it.

Chall: My goodness, so the Public Citizen challenge still hung on?

The Mining Congress Intervenes

Swent: It still hung on. They began getting impatient and finally they filed a lawsuit against MSHA requiring them to take action or trying to force them to take action on the petition. So then we

got involved because we had the right to intervene and the Mining Congress did intervene. We prepared all sorts of documents. I prepared a very lengthy affidavit for it. I'm not sure when this was, it must have been somewhere in '84 maybe.

Then I got an idea. We got hold of a speech that had been given by a fellow named Robert Wages, who was a vice president of the OCAW [Oil Chemical and Atomic Workers], headquartered in Lakewood, Colorado. So I contacted him and asked if we could have a meeting with Mining Congress representatives and himself and anyone he wanted present to discuss this litigation, because we were going to get dragged in as interveners.

Chall: The Congress was going to?

Swent: Yes.

Chall: In the meantime Homestake didn't take any part?

Swent: Not as a corporation. We did it all through the Mining Congress. So Wages agreed and we set up a meeting in his offices in Lakewood and spent about a half a day there. We discussed ways that we could settle this, the idea being that we would try to go to MSHA and get them to give a schedule of when they would review this whole matter, go through rule-making procedure and study the matter in an orderly fashion. That any hearings that they had, both the union and the Mining Congress would agree to cross-examination of witnesses. The MSHA Act allows cross-examination but doesn't make it mandatory. It says the agency can decide whether it wants cross-examination or not. We always figure that cross-examination is essential, because if there is no cross-examination you get people getting in there and exaggerating and making statements that aren't supported by factual information. And we wanted the right to question them.

The Mine Safety and Health Administration Plan [MSHA] is Rejected

Swent: So all this was agreed on in general principle. Then we set up a meeting in Arlington, Virginia at the MSHA headquarters at which Wages and a lawyer, I think his name was Vladek, for Public Citizen appeared. We had lots of MSHA people and several industry people to discuss all this. The lawyer Vladek was a very discordant voice. Wages had seemed fairly agreeable to try to negotiate something, but Vladek for Public Citizen was just, I would say impossible. He just wouldn't agree to anything. They were ready to just walk out of the room at one point, and I managed to calm

them down and get them to come back and at least listen to MSHA's proposed schedule. They hadn't even given one when they were going to walk out.

Then we got MSHA to discuss a schedule that they thought they could establish and live with of how they would proceed. It was going to take about two and a half years to go through all the proceedings that MSHA would have to go through legally. They have some limitations by law. They have to make a proposal, and then after the proposal get comments and evaluate the comments. Then they come up with a proposed rule. Then the proposed rule is published and you have to let it sit at least a month for public review, and then you have to set up hearings and allow the public to make comments on it. Then after the hearings you have to allow a certain period of time for people to submit what they call post-hearing comments, which are in essence rebuttals. They've heard the other person's testimony and they want to get a chance to rebut some of it. Then MSHA needed a period of time for reviewing all of this data before coming up with a final rule. They said this was going to take them two and a half years.

Of course the guy Vladek just said, "Oh, that's ridiculous. You could do it in six months." If they wouldn't do it in six months he wasn't going to listen anymore, so he finally left.

Chall: Of course, they'd already lost a couple of years that they could have utilized, I guess, in the process.

Swent: Yes. So Wages left also and that was the end of the meeting. We did get the matter of cross-examination out into the open there. Basically the MSHA staff agreed with the cross-examination business. The people that dragged their feet on cross-examination were the lawyers for MSHA. They didn't like this; they never have. So anyway we did get that put on and at least got it out on the table to where they were thinking about it.

The Trial Begins: The Judge Allows MSHA to Follow Its Proposed Schedule

Swent: So then the lawsuit dragged on and eventually went to trial. In the course of the trial MSHA submitted a schedule of what they could do. The judge asked for it, so they submitted a schedule very similar to the one that had been worked out at the negotiation meeting. The judge said fine, he'd accept that and dismiss the lawsuit with prejudice, meaning that if MSHA didn't follow their

schedule, why,the union could come back in with their complaints and ask him to do something about it.

So then MSHA began working on their proposed revision of rule making. I think in fall of '86 they published a proposal. They put out what's called advance notice of proposed rule making, in which they came out with some of the ideas that they would incorporate into a proposed rule and ask for comments on specific points. And I think the comments on the advance notice of proposed rule making were due in February of 1987. Then comments came in and they changed quite a few things from their advance notice and came up with a proposed rule. Then they published this later in the year, I think sometime in the summer, and called for hearings in August, on August 13 and 14 of 1987.

The Mining Congress's Preparation for the Lawsuit: Swent's Active Role

Swent: We did a tremendous amount of work on this. Well, we have to go back further. In 1980 when this lawsuit was first filed, the Uranium Policy Council at the American Mining Congress recognized that this was going to be a big bone of contention and that the industry should be getting prepared to fight it. So they set up a subcommittee--at that time it was called the Mine Radiation Health Subcommittee--and named me chairman of it. Up until then the cost of all the work which was done by the Mining Congress to fight the radiation standards had been assessed to the uranium industry. We had paid special assessments and this sort of thing for any work we wanted done. We did commission a report to a firm that was highly recommended by Robley Evans. It was a Canadian firm called Senes Consultants Limited and was run by a physics graduate named Douglas B. Chambers. He was quite capable.

So after the subcommittee had gotten organized and was working on things that we should work up to be prepared, we finally decided that we needed a good overall study. Bob Beverly was the one who suggested this and it was a very good suggestion. Instead of sitting around and being reactive to things as they developed, we should take the lead and try to develop a document on the subject.

So we commissioned this to Senes Consultants Firm for about $225,000. They finally came up with it in 1984. It's a massive, thick report. It's about this thick [spreads fingers indicating about five inches], a very thorough study. I had made some contributions to it. It covered all phases. The chapter that I contributed to was on trying to debunk the position by MSHA that

VL: Xerox copy to HNMC!
Original to LWS: with
much appreciation for
your good work, Lang
Most sincerely,
Paul

July 5, 1979

Mr. Paul C. Henshaw
Chairman
Homestake Mining Company
650 California Street
San Francisco, California 94108

Dear ~~Mr. Henshaw:~~ Paul

During the last several months, Langan Swent has actively participated in our efforts to bring greater sensibility to safety and health regulations affecting the minerals industry. I certainly would like to commend him and your company for this valuable involvement in our endeavors.

The contributions you have made have been vital in reaching industry-wide positions on safety and health issues. We greatly appreciate Langan's expertise and look forward to his continuing participation in our committee activities.

With warmest personal regards, I am

Sincerely,

J. Allen Overton, Jr.
President

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Committee

the readings or the exposures that industry was reporting were not accurate and that industry was under-reporting exposures.

Mine Safety and Health Administration [MSHA] Statistics Analyzed

Swent: They [MSHA] had published in a report to Congress that the industry was reporting exposures that were one-fifth to one-quarter of what MSHA estimated they were. This had always infuriated us because we didn't think it was really true. So we tackled the way they had gone about it and retained a knowledgeable professor at the University of Utah named Keith Schiagger to work on this. He in turn hired an ex-employee of one of the companies named Lida Hersloff, who had a degree in radiation. He hired her to do a lot of the detail work. They did some very expert analysis, fairly sophisticated analysis.

I wrote up the part referring to the audits that MSHA had conducted in some twenty mines, with their projections of exposures from those twenty audits. Now the conclusion was that although unquestionably they had chosen on purpose the mines that they suspected were doing the worst, they still had no time distributions. They were just taking readings around workings and then making an estimate of how long people worked. Their estimates were way off and we managed to show this.

Finally we got hold of data from MSHA, all their readings over a period of years, at several different major mines. And those mines in turn gave us their data and we compared them. Of course, what we found was that MSHA had used in their calculations figures, readings, from places where people weren't working. This made a big difference. And secondly, they had a regulation that says that any working place that's found to be over one working level is to be shut down until a corrective action is taken to reduce the readings to below one working level. But what they had done was they had included all the readings that were over one and applied the same period of time for them as for all other readings. And this really isn't true. If a working place is found to be high it's shut down immediately, and the duration of exposure at that level ceases right at that moment.

Chall: What do they do about the exposure before that, though?

Swent: Well, if they figured a man worked two-thirds of his time in a mine, they gave it two-thirds of his day in that particular atmosphere. This is actually wrong. What we did was by deleting the readings which were basically not applicable to exposures, like

where people weren't working and this sort of thing, and reducing the amount of application of the high ones, we came out with exactly the same results that industry was reporting, very close. So we thought we had made the case there. This was a part of the chapter that I worked on.

At any rate, the report came out in 1984 and we made it widely available, sent it to MSHA, sent it to NIOSH and to many other people in the field that were interested in the subject. It stood us in very, very good stead. It was the best thing we've ever done.

By then in the Mining Congress people were beginning to realize that if OCAW had its way that this would affect all mines, not just uranium mines. Consequently, we changed our fundraising methods to include general funds from the Mining Congress rather than just to assess the uranium industry. Because we said from now on it's a fight for the entire underground mining industry. This made it easier to get more money. We've had a pretty substantial research budget ever since.

Another gentleman that we retained was Leonard Hamilton, who is a very brilliant doctor at the Brookhaven National Laboratories. He's British in derivation but spends all his time over here now. He's very scornful of NIOSH and EPA in their projections. At one point he was an advisor to the Science Advisory Board of EPA and put in some very valid comments, very forceful comments to them. This had some influence on, kind of toned EPA down.

Environmental Protection Agency Statistics Analyzed

Swent: EPA has been using risk estimates that are much higher than those that even NIOSH has and that independent people in the industry come up with. The biggest difference is they use what they call a lifetime risk. They say it's a fixed risk, that if a man gets up to a point where he's running, say, a 10 percent risk of getting lung cancer, that is, 10 percent for the rest of his life. More recently, work by the Canadians and work by NIOSH itself using the U.S. Public Health Service study in the United States and Canadian workers in the Canadian field have shown that the risk declines after exposure. That for every day after the last exposure the risk begins to decline, and that when they get to ten or fifteen years after exposure, the risk has virtually disappeared.

Chall: How does that happen?

Swent: Well, if there's cell damage there is apparently some repair in the body. The longer you go without getting the illness, the more likely you are not to get it. So finally here, just within the last three or four days, I received a copy of a paper that EPA put out in which-- Well, I should go back a little ways.

During 1985, '86, and '87, there was a National Academy of Sciences committee called the BEIR IV Committee. That stands for the Biological Effects of Ionizing Radiation. And about every five years they put out a report on the matter. This particular report had been restricted to the effects of alpha radiation, but it's a thick book. They came to the same conclusion, that there is a decline in risk after exposure ceases. So since this came from the National Academy of Sciences, EPA in a way had to accept it.

They do still pick at BEIR IV and say, well, they didn't do certain things they should have done. But they did come out with this thing three or four days ago saying that they're proposing to change their risk estimates to something that makes the risks one-third less than their previous estimates. They're adopting the principle that risk does decrease with time, after the last exposure. So this is progress.

Chall: Now what happened to the lawsuit?

Swent: Well, the lawsuit was dismissed when MSHA presented their schedule. The union did come back and try to get it reinstated when MSHA fell behind on their schedule. The court threw it out, said MSHA was doing a good-faith job here, that they may be behind but that doesn't really permit the lawsuit to be reopened. They reasoned that they haven't been ignoring the problem. It's just that bureaucracies do have limitations. So that was thrown out of court and that was the last action that there's been on the lawsuit.

Chall: Now go back to the suit, initially in 1980 when Public Citizen brought in its--

Swent: They brought in a petition at that time.

Chall: Did they back their petition with statistical reporting to indicate the reasons why they would want these rather drastic changes made?

Swent: Oh yes, they had a fairly voluminous text that they submitted with it written by this Dr. Sidney Wolf.

Chall: Are they valid? Was there validity in their information?

Swent: There's some validity, but not all of it. A lot of it is exaggerated and the reasoning and conclusions reached weren't

justified. But actually none of that ever got to be part of the trial. The trial was just basically a fill-in on the background of the problem to the judge. This was what my testimony was designed to do. The lawyers told me, "Educate the judge in this whole thing." I wrote about a forty-page affidavit, just giving him the history as to how all these things had developed and where we stood today.

The Swedish Experience: Radon Daughters/Cancer in Iron Ore Mines, 1984

Swent: To go to another little aspect here, in 1984 out of a blue sky there was a paper published-- Well, let me go back a ways, even further. In 1981 there was an international conference on radiation and mining held at Golden, Colorado, sponsored by the Colorado School of Mines and by MSHA. And it was a very good conference. It lasted several days and they had people from all over the world come to it and give good papers.

One of those who testified there was a Dr. Edward Radford, and he was an epidemiologist at the Pittsburgh School of Medicine at the time. He had been working with some Swedish experiences. In Sweden they found that many of their mines--non-uranium mines, they had no uranium mines in Sweden--many of their non-uranium mines had significant amounts of radon daughters in them, particularly some of the iron ore mines way up north, north of the Arctic Circle near Kiruna. One was called the Kiruna Mine and the other was called the Malmberget Mine, which is about 120 kilometers south. He presented a preliminary paper there showing the excess of lung cancer in this group at Malmberget. He was quite an emotional person. I understand he was the son of a minister.

On one of the programs there was a gentleman named Wolfgang Jacobi, a German from Munich who specializes in what is called lung dosimmetry, which is calculations based on the analysis of what would go on in the lung, taking into account the size of air passages. It's a very detailed type of field where you have to deal with all the intricacies of the tracheal-bronchial tree and the lung itself, and what happens when particles and gases go through, that sort of thing, and where dust will be deposited out at the bifurcations. It's very complicated, highly theoretical too, and they're always trying to compare their results with actual ones. There's no experimental work you can do in this field, very little.

At any rate, Jacobi was a member of the International Commission on Radiation Protection, normally referred to as the ICRP. We also have in the United States the NCRP, which is the National Commission on Radiation Protection. It's a highly professional society, well regarded. The ICRP is also, since it's generally made up of the leaders of the NCRP and of the equivalent organizations in other countries. They generally meet in Europe somewhere; they seldom meet in the U.S. At any rate, the ICRP had named a committee which studied the radon daughter/miner situation. Just before the Golden conference they had come up with a publication and a finding that 4.8 working-level-months would be a proper standard per year.

So, at the conference one of the presentations after a dinner was by Jacobi, going through the reasoning that the ICRP committee had gone through in arriving at the 4.8 WLM per year. And when he got up to do this--I was sitting right next to Dr. Radford, because I had had some dealings with him before on another subject, which I'll get into later--Radford immediately jumped up and said, in essence, "What right does the ICRP have to be setting standards? This is a moral decision and the ICRP shouldn't be getting into moral decisions." They had quite a time shutting him up, but he finally quieted down and Jacobi finished his report.

Then at the final day of the conference we had what they called a sort of an open discussion panel or an open discussion session. There were a few panelists--I was one--who were supposed to answer questions from a whole bunch of people, and many of the people who had given papers were there to be questioned.

There's another University of Pittsburgh professor named Bernard Cohen who is diametrically opposite of Radford, and they have fought like cats and dogs over the years. They got on the floor there and they really had a real knock-down, drag-out argument. Anyway, somebody asked what did Radford think of the four WLM standard, and he said, "It's a license to kill." He was very vociferous about it. So you could see that he had a bias in his approach to things. He's not a true scientist in that he wants to show that present levels of allowable exposure are too high.

So in 1984 he [Radford] and a Dr. Renard of Sweden--he was the mine doctor at the Malmberget mine--had written a paper that was published in June of '84 in the New England Journal of Occupational Medicine, which is a prestigious magazine. The materials are peer-reviewed before being published. It was an article about the experience at Malmberget. They had studied, oh, something like 1,200 men who had worked for many years underground in the Malmberget mine. And they had followed up on them and they found that the lung cancer experience was very high compared to the

Swedish national average. As far as the epidemiology was concerned they'd done a very good job.

Chall: They took into account smoking and things of this kind?

Swent: Well, they did some smoking work. They were able to get some smoking histories but they weren't able to get all of them. I think they got a sample of them. At any rate, the results were that the risk factors were about three times as high as those in the U.S. study. They were saying the U.S. study is no good; for some reason it's flawed, and this is the best up-to-date data.

Now Radford has a very good reputation. He was on the National Academy of Sciences and was the chairman of the BEIR III committee that put out a 1980 version of the BEIR report. I had some correspondence with him because I managed to get hold of a draft chapter on the radon daughters. There were some mistakes in it, and I sent my corrections to the National Academy of Sciences and they referred them to Radford. We had some correspondence and finally forced them into making some corrections.

By then they had gone to press with the first version of the report. The first version was one of these photo-type copies, and then they'd sent another version to be type-set. So the corrections they agreed to make were put in the type-set version but not in the photo-copy version, which was the first one to come out, and the one which went to everybody first. He had made several mistakes, one of which he corrected, others he didn't. But anyway, I had had some experience with him there.

The Mining Congress Contests the Report

Swent: So when this paper about the Swedes came out I basically didn't trust it. One of the things he estimated was-- Well, I'd have to go back. The facts on the matter were that there was no radiation data on these mines, which had operated since back in the 1920s, until 1969. In 1969 it was first discovered that they had radon daughters present in elevations enough to be worrisome. They had taken the radon daughter averages in 1969-72 and assumed that ventilation had not changed over the years since the beginning of operations, and they just projected these back at those levels, increasing them for various factors, mainly changes in work week. The work week now is shorter than it used to be, so that as you go back in time you have to allow for longer work weeks, which would increase exposure.

They baldly stated in the paper that they assumed that the ventilation had remained the same throughout the period. And they estimated that the overall accuracy of their exposures was plus or minus 30 percent, which is very, very close really, considering the fact that they had to project these back so many years. One of the MSHA people, a fellow named Aural Goodwin whom I've known there for many years, a Ph.D. in industrial hygiene, said he didn't see how they could make that claim of 30 percent accuracy. He said, "I'd sure like somebody to debunk that paper."

Swent Visits Sweden to Obtain Information

Swent: So we took it on ourselves in the Mining Congress to try to do this. Doug Chambers of Senes Consultants and I got some money appropriated by the Mining Congress to send Doug over to Sweden. I was going over to Europe on a vacation anyway and was going to wind up in Stockholm. So the arrangement I made was I would only charge for my expenses from Stockholm on. So we did this. Doug Chambers and I met in Stockholm in mid-September of '85 and then we went on up to the Malmberget mine. We went up to Kiruna first and had a session with a Dr. Harold Jorgensen who had had experience with lung cancer in his mine, in the Kiruna mine.

Originally he had written some papers estimating what the exposures must have been in the same fashion as did Radford and Renard. Then as he began seeing more and more results he changed his mind. He had just recently written a paper that he gave to us while we were there in which he said the readings must have been higher in the old days or we wouldn't be getting these results. He agreed that probably the Radford-Renard study was naive in assuming that the ventilation had been the same all the way through.

Anyway, then they drove us down to Malmberget. The Kiruna and Malmberget mines belong to a Swedish government corporation named LKAB--I won't try to tell you what it all spells, it's too long--but they drove us down to Malmberget and put us up in their hotel there. We spent three days. Dr. Renard had retired, but they had brought him back from retirement and brought back their chief ventilation engineer named Ture Jonsson. Ture Jonsson had been the ventilation engineer for years but was now retired. They had a whole bunch of other people, the members of the ventilation department. The chief engineer who sort of hosted this was Nils Jonsson.

We spent a long, long day with Dr. Renard, and Nils Jonsson, and Ture Jonsson, and all the others. Dr. Renard went through how

they had gathered the data. We got lots of copies of papers part way through it, of what they'd done. We asked for others, which they gave us. They were very cooperative. We spent the night there, stayed in a hotel.

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Then Doug Chambers and I left about noon the following day and took a train out to go over to visit the doctor who was in charge of health matters at the Boliden mines. Boliden is a worldwide mining company. We also visited a couple of epidemiologists, Damber and Larssen, in a town called Umea and had a session with them about this study.

Then we also visited the head of the Swedish Radiation Protection Agency, a fellow named Olaf Snihs, and an assistant named Ehdwall, both very knowledgeable persons. They promised to send us copies of all the readings that had been taken in the Malmberget mine. We had asked for these from Dr. Renard but he said he didn't have them. In the early days only the Radiation Protection Agency had taken readings, and in later years the staff had learned how to do it and then taken their own, but they didn't have the early ones.

Then we went on down to a town called Linkoping and visited a very prominent occupational health physician, of worldwide reputation, named Olav Axelson. We had a long visit with him, and then we separated. I came directly back and Doug Chambers did some traveling down in central Europe.

The Mine Safety and Health Administration [MSHA] and EPA Differ on Swent's Analysis

Swent: When we got back I took the lead in writing up an analysis of all this. We came up with a fairly extensive report which we eventually submitted to MSHA showing or trying to demonstrate that the radiation figures must have been higher in the earlier days than they were at the time they took their measurements, and that actual exposures could have been anywhere from three to ten times as high as they recorded them for the purposes of their study. Well, MSHA accepted this report, because they know mining and my analysis had been from all mining factors.

In the meantime, I had gotten Nils Jonsson and Ture Jonsson to work up the history of ventilation changes in the mine. When we got this it was just obvious that there had been many changes in

ventilation over the years and that the basic assumption, that ventilation was unchanged over the years, had to be incorrect.

This didn't sit very well with EPA. I sent copies to EPA too and they over time have challenged it. Well, in the first place we didn't write it up in a scientific fashion to publish, so they called it anecdotal. But that doesn't bother me, because it was. We wrote it up just as sort of a trip report. We did this and we did that and this is what we found, and these are our conclusions.

But they also claimed that in application of a certain formula we had made a serious error. There's an equation called the Harris-Bale equation which can be used to calculate the amount of fresh air that you need to put into a working level--to get it down from a known working level to a better one, a target working level. That's working level one and working level two. If you want to lower it from two to one, it tells you how much fresh air you have to add. You have to know how much air is going in. We had used this equation to figure backwards what the readings must have been back in about 1958.

We had a very good history of the ventilation changes in the mine--in one called Tingvalskulle mine. They had been able to trace for us all the changes in ventilation from 1958 on. With this we just figured backwards, used the formula in reverse to figure what the readings had been based on the new reading, after adding the new ventilation. And we worked it all the way back to 1958 and showed that the readings probably were on the order of nine working levels at that time, whereas they had projected less than one.

Now the Harris-Bale equation that we used is what they call a modified version. It takes into account the volume of ventilation air in what we call volume one, say at the current condition, and volume two which is what you're calculating. And then the reading that you have, the working level concentration, and the working level concentration that you desire.

The true Harris-Bale equation as originally developed by Harris and Bale in 1964 also involves any changes in the volume of the working, and any changes in the emanation rate of radon from the walls. But in their paper they had shown that for air changes running from about one-tenth of an air change per minute up to three air changes per minute, that the volume and emanation rate factors were negligible. The common formula that's used in mining neglects those two items, they drop those two out. And this is approved by the Bureau of Mines; the Bureau of Mines uses it that way all the time.

Well, EPA latched onto that and said this was unreliable because we'd omitted those two terms. I have rebutted that to a certain extent. In the first place, the source of radon in those mines was not emanation from the wall rock. The source of radon was carried in the ground water. The Renard figures show that the concentration of radon daughters coming from the ground water was the same. They were measured in 1915 and they were the same in the 1970s when they were measured again. So we argued that the emanation from the rock is not a factor and therefore we're justified in omitting the emanation term. On the volume term we took the position that the volumes haven't changed sufficiently to get it out of that range that it's valid for, that the modified form is valid for.

MSHA Proposes the Sum Rule Standard: The Economic Implications

Swent: At any rate, this is still a bone of contention with EPA. Even right now I've got a draft sitting on my desk by Doug Chambers of a rebuttal to EPA. So that kind of brings us up to date on this. The MSHA hearings were held August 13 and 14 of 1987. Right now we're in a state of hiatus. MSHA has not come out with a final decision.

The Gamma Radiation Factor

Swent: What they had proposed was to leave the four working-level-months the same. They were going to add a regulation limiting gamma exposure to five REM per year, then were going to introduce a sum rule for adding these two together. So you were limiting the total amount of radiation. The sum rule would work like this: you add two fractions. The first fraction is the amount of radon daughters, of exposure--we'll say two working-level-months in the year--divided by the allowable amount, which is four. So the first fraction would be one-half. The second fraction would be the actual amount of gamma radiation divided by the five REM. If you had, say, two REM of exposure over five, that would be .4, so one-half plus .4 would be .9, and under the sum rule you'd be in compliance if the sum of those fractions was not greater than one.

But if you had, for instance, three REM instead of two, that would be three over five, which would be six-tenths. And six-tenths plus five-tenths on the radon daughters would be 1.1, and then you would be over the combined limit. So given the levels of

gamma radiation that we now have in the mines, this would effectively cut the radon daughter allowable down to roughly 2.67 working level months per year.

Chall: That's quite a change.

Swent: So we've argued vociferously against the sum rule. One of the arguments, the basic argument, is that the epidemiology studies-- To go back a ways: gamma radiation can cause lung cancer. Not very much, but it causes some. The epidemiology studies have studied the results of exposure. Actually, the results are the result of exposure to both gamma and radon daughters, but you can't distinguish as to how much gamma contributed and how much radon daughters contributed.

So we say that setting up a sum rule is repetitive because we've already got that worked into the results which came up with four WLM. This was one of the arguments that we used, and we used a number of other technical arguments, but I'm not sure that it would hold. ICRP has recommended this but in very guarded language. MSHA had neglected many of the limitations that were put on it. So that's where things stand right now. We're waiting for MSHA's decision on a new rule, which they say will come perhaps in August.

Chall: This gamma statistic, that's the first time at least you've mentioned it when we've been talking. Is it something that has only recently begun to be measured separately?

Swent: No, it's been measured off and on for years. The original method was just to go through the mine with a gamma meter and see if you had any real hot spots, and to keep people away from those. Then later they began experimentations giving people a little badge that they could wear and wear it for a month or two months. It records the cumulative gamma exposure that they've had. Basically they're well below the five REM.

But the problem in the last two or three years has been that there's been a tremendous drop in the price for uranium; the market for uranium has almost disappeared in the United States. Many mines are shut down. There are a few mines still operating, and their method of survival is mining high-grade ore. Of course with high-grade ore the gamma is higher because there is more radium present. So as we go on this will become more important.

Chall: I see. If you do have a high gamma reading and the sum rule is used, it looks as if there's going to be a lot more ventilation put into the mines, or maybe in just these high-grade ones. Is that going to create a problem?

Swent: Well, that's all that are left, the high-grade mines.

Chall: Okay. So the cost will then rise?

Swent: Yes. It's very significant. In fact, the Mt. Taylor mine of Chevron in the Grants area is very deep. It's an unusual mine. It's about 3,400 feet deep and it's very hot. They're right on the slopes of Mt. Taylor, which is an extinct volcano. It makes a lot of water and the water comes down through from the volcano area, and it's hot. The water is 127-130 degrees in temperature. For mines that are shallower it's not quite so difficult to add ventilation by drilling ventilation holes. This was the solution to most of the mines in Ambrosia Lake when they reduced from twelve to four, this was to add ventilation holes, break the mine up into several ventilation circuits between vent holes. But they're kind of at the limit now of air velocities.

At the Mt. Taylor mine, the Chevron people tell us that they just cannot drill bore holes. They're going to have to rely for the life of the mine on the two major shafts that they put in. One is a downcast and the other's upcast. All the air has to go in and out through those two shafts. The drilling of the bore holes, because of the nature of the ground--they've got some very bad ground in those 3,000 feet--they said it's just virtually impossible to drill a ventilation shaft at any reasonable cost. They say rather than do that they will shut down.

Chall: Well, this has great implications then for the industry.

Swent: Yes, right. We believe--I don't know yet how it will turn out, we may be very wrong--that probably what MSHA will do is to drop the sum rule, but they may lower the four WLM to some lower figure of three or three-and-a-half or something, that wouldn't be quite as drastic. Three wouldn't be quite as drastic as the sum rule. The sum rule would put us at 2.67 in essence, with some variation between mines. But anyway, we hope that's the way it will go.

Chall: I see. Well, it certainly has been an interesting decade or so of statistical work. There's always that uncertainty, isn't there?

The EPA's Current Investigations of Radon Emanations from Uranium Tailings Piles and Houses

Swent: Yes, there's a certain amount of uncertainty throughout it all. This has application in other fields. Let me go back and say that the uranium miners are really the only data that we have on

causation of lung cancer by radon daughters. The EPA put out a big scare about atmospheric radon and radon daughters.

They've raised a big fuss over uranium tailings piles, because they do emanate a certain amount of radon and that gets changed into radon daughters and it blows around. Since they've developed computers that can calculate to very tiny numbers that carry in a lot of zeroes after the decimal point or by carrying high negative exponents--anyway, this is a mathematical technique that computers have made possible--they will take the emanation from a tailings pile and calculate what it does to the atmosphere over the entire United States. And when you calculate it, it is such a tiny figure of how much the radon or radon daughter level might be increased by, say, one mine. Then from this they take their risk factors and calculate how many lung cancer deaths you'd have. Well, if you calculate it on a one-year basis, it's so small that everybody laughs.

So what they've done is they've taken a thousand years, and they've said in a thousand years this would cause--and by then you've worked up to maybe a finite number of lung cancers. They say this is the result. And people will forget that this is over a thousand years: "Gee, we're going to have ten or we're going to have a hundred excess lung cancers." And they don't mention how many ordinary lung cancers there would be in that period.

The ordinary lung cancer in that period would be hundreds of thousands, and they're talking about an increment of you know, a hundred, or three hundred, something of that magnitude, in a thousand years, an increment above hundreds of thousands. Well, just your projection of the ordinary lung cancers has more possible error in it than the increment you're talking about. So it's a very questionable argument, but they're very serious about it.

That's for tailings piles. Now they've also gone in and started checking houses. One of the big areas is what they call the Reading Prong in the New Jersey-Pennsylvania area. It's a granite formation which underlies the ground there, and homes that are built above it have abnormally high radon and radon daughter readings, some of them as high as the uranium mines. They're now trying to make projections here by using the uranium miner data. But it has to be modified, and there are all kinds of things that are different. People's breathing rates are different. Occupancy of the house is a factor. You have to estimate how long a person spends in his house. They generally assume in all their projections that you're born in a house, you stay there for seventy years, never go out to school, never go out to shop for groceries. That's the way they do their calculations. Then they come up with a very finite result.

But the other things that have to be taken into account are: I mentioned breathing rate, and this will vary considerably. The age of the people--now, you start with babies, which we don't have in underground mines, and they're much more sensitive. How you adjust for that is still not known, but it is a factor that has to be taken into account. The particle distribution in the air is very significant. I mentioned once, I think, that the free atoms of radon daughters are the most active and the ones that do the damage. In ordinary mine atmosphere you seldom get above 5 percent free atoms and sometimes less than that. But this is a factor of how much dust there is in the air.

In houses the dust distribution would be different, the size of the dust particles would be different; there's no real good body of knowledge on that. They have a good body of knowledge on the size of dust particles and the amount of them in the mines. But they don't have it and they don't know how to adjust the mine figures to household figures. So there are a lot of uncertainties and unknowns in trying to project over from the mining experience to the home experience. But EPA, like any bureaucracy, would like to increase their responsibilities and work. So scaring people does that for them.

Chall: The last quite a number of years you've been working almost entirely on this matter of health and exposure, haven't you?

Swent: Yes.

Chall: You've been doing it as an employee consultant. Is it for Homestake?

Swent: Well, the way I'm located right now I'm a consultant for Homestake, I'm on a retainer with them, and they have turned me over to the American Mining Congress. I hardly ever speak to anybody at Homestake. I spend most of my time working with the staff people of the Mining Congress or other companies that are in the radiation field.

Chall: This must be quite stimulating. It never ends!

Swent: No, it doesn't. And we have a lot of things that we still need to accomplish, because they say EPA is going to have a hearing on their risk factors. We're having Senes Consultants 1984 report brought up to date. We want to have that done by the time that EPA considers its new philosophy in October. We're trying to get some rebuttals worked up to some of their criticisms of our statements. So the thing still goes along.

[Date of Interview: June 17, 1988] ##

Swent: This is a statistical study [shows chart] showing each year, how many exposures to radon daughters, at different levels of exposures, zero to one, one to two, two to three, and so on, classified by different types of work--production, maintenance, service, salaried people, and then a total. There are two tables: one includes everybody who was assigned to work underground in a year. The second table deals with those persons who worked 1,500 hours or more in a year, which is about three-fourths of the full year. This doesn't show you the full picture, because really the exposures get diluted by the number of people who work just a few days, that sort of thing. They have very low exposures and they crowd figures into this part of this chart. The 1,500 hours are basically in the production level. You find that those increase--for instance, that increased in this level from 2.5 percent to 6.3, more than double. The total increased from 1.1 percent to 3.5 percent, which is tripled.

Chall: You're just dealing with the underground personnel?

Swent: Some of the systems are tied to the payroll and they do include people who don't go underground. But they get zero, so we always exclude them from this analysis, because that dilutes them further. So we've always published these two tables to bring that fact out, because the Department of Labor one time just used these figures and said, "Oh, you could get down to these low levels. You're down there now." Because they had all these part-time people included in there.

I'm working on the '86 figures. We started this in about 1970 when there were no statistics published by anybody. There was just a lot of misinformation being put out by the Labor Department. We started this to combat that. The Bureau of Mines had been putting out a type of statistic and they quit putting them out, so these were the only statistics left for years.

Chall: Did the Labor Department accept your figures ultimately?

Swent: They're pretty well quoted now. NIOSH has used them. The Labor Department has criticized them. We had a running fight with them, which we had for a while, but I think that's all past.

Chall: I see. Well, I will want to use some of this material. Okay.

Mine Safety in Underground Mines

Management Responsibility

Swent: I want to talk about our safety record in Grants. We had a very good safety record, especially in the early days there. But it was always good. I supported safety activities strongly, attended all the general safety committee meetings and occasionally the departmental meetings when I had an opportunity. I had several general principles on safety that I believed in very strongly, and still do.

One is that the top person in the organization has to set the example and show that management is supportive and interested in safety. If the manager only gives lip service to safety and leaves it to others, like say, let the safety director take care of it, that sort of thing, pretty soon everybody's doing the same thing and you don't have safety consciousness in the organization.

Secondly, I always felt that the safety director must be directly under the manager and have access to the manager in case he had any complaints about the cooperation that he was getting from the rest of the organization. In Lead they didn't do this. In Lead the safety director was basically under the mine superintendent, two steps down from the manager. I never thought that was quite right. He was relegated to a fairly insignificant role as a result of that.

I also believed strongly that the safety director should have authority to stop work and any working in case he found, in his judgement, imminent danger there. If it wasn't imminent danger he should, in order to keep things working properly, go get the supervisor and tell him what he thinks is wrong in the place. But in the case of imminent danger he shouldn't wait for that.

Our safety director was excellent. I went to a lot of trouble to recruit a good man. His name was John Abbiss, he was British. Brought him down from a mine in Newfoundland where he worked for Asarco. The corporate director of mines safety for Asarco had recommended him to us. He already wanted to leave, so we didn't steal him away from them. He wanted to get away from Newfoundland. He had had enough time up there.

But as our mines got larger and we had more men underground we did have some fatal accidents. This is always unnerving, but unfortunately we had them. I made it a practice to personally

attend all the locally held funerals of any of our workmen who were killed on the job. This wasn't always pleasant, because sometimes relatives were very bitter. And I never blamed them for that, but I might not be the most popular person there.

Chall: I see, they would tend to blame the management from the top down.

Swent: Yes. I thought it was a good personal discipline to keep me from getting away from my first principle, which is that of setting the example anyway.

Chall: Yes. And then after an accident of that dimension, or any other accident, would you go over things carefully with your mine safety personnel?

Swent: Yes. And of course the state mine inspector always held a hearing after a fatal accident, and I always attended the hearings and made sure that we produced all the witnesses that we could that had any pertinent information to give. The mine inspector's obligation under law was to come up with a recommendation to prevent similar accidents. This was sometimes a difficult thing to do, because a lot of accidents were basically the fault of the individuals who were killed, who did something wrong themselves. About all you could say on that is, well, they needed further training.

At first some good recommendations came out of these hearings. Then later in the whole district, after most of the normal causes of these accidents had come forth and had recommendations made for them, they began to be repetitive. So there wasn't too much that could come out of the hearing, because the cause was the same as that of some previous accident, which is kind of discouraging.

Administration of the Federal Metal and Non-Metal Mine Act

Swent: Well, we'll go back to the administration of the Federal Metal and Non-Metal Mine Act under the Bureau of Mines. After 1969 when the initial set of regulations came out, the advisory committees continued in existence. There were three of them, one for the underground mines, one for open pit mines, and one for sand and gravel mines. These were nine-member committees with three industry management representatives, three labor representatives, and three state government representatives on each one. The underground committee, which is the one that I worked with most of the time, had Gordon Miner on it for the industry. I'm not sure who were the other two at first, but in the later years the other two were a fellow named Robert O'Neil and Frank Zimmerman of

National Gypsum. I think O'Neil was from Cleveland Cliffs Iron Ore Company.

The underground committee met quarterly, and I don't know how often the others met. Under the law, if the advisory committee recommended a regulation, the Secretary of Interior did not have to hold a hearing on it. If the department itself wanted to pass a regulation and didn't have the approval of the advisory committee, then they were subject to having to hold a hearing if anybody requested it.

Chall: I see, so the advisory committee really had a lot of power.

Swent: Yes. And it meant, except for very obvious things that might have to be passed, that the department really tried to put everything through the advisory committee so as to avoid the expense of holding hearings, because these got to be very expensive.

The industry members worked very closely with the Mining Congress. All of them were employees of companies that were members of the Mining Congress. They gave all proposed regulations to the Mining Congress to distribute to its membership before committee meetings were held. But with the passage of time, of course, there were many additional regs [regulations] that were adopted over the first batch adopted in 1969.

Very shortly after the standards began coming out, organized labor, mostly through the United Steelworkers of America, started a campaign to have the Act amended to change from the Department of Interior to the Department of Labor for responsibility for enforcement. That was because they thought they would have more political influence in the Department of Labor. This has always sort of been conceded as being a department that's run for the benefit of organized labor. But they didn't really manage to put this over for a long time.

Fire in the Sunshine Mine, 1972, Reviewed: Causes and New Regulations

Swent: In May of 1972 there was a very serious fire in the Sunshine Mine in Idaho. Did I mention this before?

Chall: I think so, but go ahead. It will probably fit into your overall discussion of the mine safety administration.

Swent: Well, ninety-two men I think were killed. Gordon Miner, who worked for Hecla Mining Company which had the mine right next to the Sunshine Mine, was there at the time. He came over and helped with the rescue work and was very much aware of what happened and what the causes were. He had the Mining Congress call a special meeting in Detroit of the non-coal committee very shortly after the fire, and he came and explained the whole thing to us, long before any report was put out by the Bureau of Mines.

Chall: What kind of a mine was that?

Swent: It was an underground silver mine in Idaho. The fire was determined to have broken out from spontaneous combustion of old materials that were stored in old workings. You know, old timber and materials of that sort that were combustible but stored in abandoned workings that had been bulkheaded off. They apparently lit spontaneously, and then the fire burned its way through the bulkheads and then spread smoke through the mine. The fire didn't encompass the entire mine, but the smoke and fumes did. And it was a complex mine, several levels, with an interior hoist. The men were, of course, notified.

I should go back a ways and explain that most large mines have what we call a stench warning system, where they have a bottle of very strong odor material that's kept continuously in the ventilation circuit. When there's a fire this bottle is broken and the stench spreads throughout the entire ventilation system. The men know that it's a fire warning and that they're to go into their fire evacuation routine. And it works pretty well; it gets to every ventilated place.

Chall: That's an interesting way. And what happened in Sunshine, do you think?

Swent: Well, they got the warning, the stench warning worked all right and men started leaving. But the problem was that their escape ways, the routes they had to follow, all had smoke and fumes in them. One of the complications came from the fact that--and the men didn't know this at the time, this was determined later--it became quite fashionable in the sixties to coat wooden bulkheads with polyurethane foam to prevent air leakage. This polyurethane was put on in a spray by mixing two chemical reagents and then pumping them through a spray head. Basically the material at normal temperatures didn't burn. But at very high temperatures that occurred with this fire, once it got underway, the polyurethane broke down and emitted toxic fumes. They've had to change to the type of foam now used. They still use foam for insulation and for the same purposes, but it's a different type.

So that was one problem. In addition, the smoke normally has carbon monoxide. The defense against carbon monoxide in this case used to be and still is what is called a self-rescuer. This is a compact device that consists of a breathing piece that you put in your mouth. It has a hose and there's a nose clip so that you don't breathe through your nose. The hose leads down to a little can that has a chemical in it that absorbs carbon monoxide. The air goes through that and then up through the hose into the person's mouth.

These self-rescuers are good for about forty-five minutes, but basically they only work for carbon monoxide. These had been stored in a number of different locations around the mine and apparently not taken very good care of. Some of the men couldn't find them, and others when they found them didn't know how to put them on, and some of them were defective.

Then one of the lower levels was serviced by an internal hoist, and the hoist man died. So these men were never hoisted out and they all died down there because they couldn't get out.

Chall: A series of misfortunes.

Swent: Yes. Well, within a few days after this fire occurred the advisory committee met and unanimously approved several new regulations on self-rescuers, including a requirement that the men carry them on their person at all times. This is a debatable thing. I suppose it's necessary, but these guys get loaded down with an awful lot of stuff! [chuckles] They're kind of heavy. They carry a lamp, usually, and a battery for a lamp that's quite heavy. Quite frequently they may have tools that they carry in their belt, and sometimes when they're doing industrial surveys, hygiene surveys, they have to carry a pump on their belt. It gets pretty awkward. But anyway, that's the regulation that came out. They also required training in them and renewal of the self-rescuers every six months. They required all visitors to a mine to have training and to carry a self-rescuer.

Mining Enforcement and Safety Administration [MESA] Replaces the Bureau of Mines, 1972

Swent: Then a few days after that the Secretary of Interior, in order to forestall the steelworkers' efforts to have Congress change the Act to put the inspection function under the Department of Labor, established a new agency within the Department of Interior to administer the Act. He took authority away from the Bureau of

Mines. The new agency was called MESA, that's an acronym for Mining Enforcement and Safety Administration. The actual formation of MESA was accomplished by transferring virtually all the U.S. Bureau of Mines personnel involved to the new agency. We were dealing with the same people, it was just a new name for them.

Now one thing--they also transferred the coal mine inspection so that all mine inspection was under the same agency. The coal mine inspection under the 1959 Act had been in the Bureau of Mines already, so both of those were transferred even though coal wasn't involved in the mine fire at Sunshine. As a result organized labor was not able to get Congress to make any change in the Act, and things sort of went on as before. Nothing was changed in the Act.

MESA, however, was headed up by an administrator. This was something new. And the first administrator was a fellow named Robert Barrett, who was a career government person who had been mostly in coal mining. The administrator basically changed with the presidential administration. This changeover had occurred, of course, during the Nixon administration in '72. Barrett kept on for several years, I think through the Nixon and Gerald Ford administrations. Then when President Carter came into office he resigned and a man named Legather--I forget his first name, I'll have to look that up--was named administrator. He was an ex-organized labor attorney. I think he stayed on until the act was repealed in 1977; this repeal became effective in 1978.

In June of 1976 the underground advisory committee considered and approved a regulation proposed by the MESA staff, particularly headed up by a man named Aurel Goodwin. He had a Ph.D. in industrial hygiene and was a fairly knowledgeable fellow. He had a very nice personality. We did a lot of arguing with him, but it was always on an amicable level.

MESA Proposed Regulation on Radon Daughters Exposure, 1976

Swent: At any rate, he had proposed a regulation to the MESA. It called for a limit of exposure to radon daughters in uranium mines of eight working-level hours per day. This meant, for example, a concentration of one working level for eight hours or two working levels for four hours. But it was a daily limit. Now, it was fairly liberal in that if you did that day after day, the total exposure in a year's time would be twelve working-level-months. They already had the four working-level-months in place. So from the point of view of how it affected the overall limit it wasn't bad, but it imposed a tremendous paperwork thing to do it every day.

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Chall: How did you work that out with Goodwin?

Swent: Well, the committee met in Birmingham, Alabama. I got notice that this was going to be considered, and I went down there and spoke against it. But I was the only one who came and spoke against it. Aurel spoke for it and said, well, an awful lot of lung cancer cases were occurring. MESA wanted something that they could cite daily on. In other words, with the four working-level-months standard, MESA had to wait a full year before they could see if anybody had violated it. By then if they had, why, overexposure would have taken place. It was a sort of a retroactive citation.

They wanted something that they could cite on at the time of an inspection. When a mine inspector came around to make an inspection they'd look at your records. If you had people that were exposed to more than eight working-level hours in a day, why, he could issue a citation for that. They already had a standard that prohibited exposure of anybody to more than one working-level at any time. The way that one was worded, if you exposed them for five minutes to over one working level, that was a violation that could be cited. But MESA seemed to think they didn't have enough tools to work with.

Aurel went through a very frustrating time in those years when they thought they weren't getting full cooperation from all the mining industry. And it may be that he wasn't. Anyway, I spoke against it but it didn't have any effect. The committee passed it without much problem.

I flew back to Denver for an industry environmental meeting and then on to Salt Lake City to see Dr. Archer--I had made a date with him--of the Public Health Service. I told him about the eight working-level hours per day and he remarked that MESA was going too far. So I asked him to write them a letter giving his views, which he did. He said it was administratively not necessary.

Chall: And not necessary from the standpoint of health?

Swent: No. He thought exposure should be as low as possible, but that this was an administrative convenience and it wasn't really necessary. Because it was not going to hold exposures down.

Chall: They were just going to be able to catch them faster, is that the idea?

Swent: Well yes, they were going to be able to cite employers more easily. We discussed this regulation at meetings of the Mining Congress Occupational Health Committee and the Non-Coal Mine Safety Committee at the annual convention in Denver in September of '76, and decided we'd try to get it reconsidered by the committee.

A fellow named Bradley Johnson of the Mining Congress, who was a pillar of strength for years there, and Gordon Miner found that under the procedures of the committees if the chairman of the advisory committee approved, an item could be reconsidered. Well, the chairman of the Underground Mining Advisory Committee at that time was one of the labor members. They rotated the chairmanship every year, and this particular year one of the labor members was chairman. Gordon Miner was able to get him to agree to reconsider the regulation at the next meeting.

So Miner got the chairman to write a letter to MESA to put it on the agenda for the next meeting, which was held in Seattle in October of 1976. I went up to that two days early, before the meeting, and attended a strategy session that had been arranged by Brad Johnson of the Mining Congress. There were several crucial health items that were up for consideration in addition to the radon daughter one. One was on exposure to arsenic, another one on exposure to lead, and a third one on exposure to mineral fibers. These are all very controversial subjects.

On the radon daughter item, there was a new member on the committee who had not been at the previous meeting. The state mine inspector from Nevada--I don't remember his name right now. I think it was Debois, but I'm not sure. Part of the politics, of course, was to try to convince him, as one of the independents on the committee, to see industry's position on that eight working-level hours regulation. So Gordon worked on him on that and so did Frank Zimmerman. Frank was a very persuasive person, and Gordon was, too.

The Regulation is Rescinded

Swent: The meeting turned out to be a very tense and dramatic one. It's probably the most dramatic one that I attended, and I attended several. NIOSH sent Dr. Archer and Duncan Holaday, who was an industrial hygienist who had worked with Vic Archer, to testify. Archer testified on radon daughters in general, and Holaday on occupational disease in general. Archer really had no new data or anything. Basically what he gave was a repetition of data already known. But as a NIOSH witness he didn't state what he'd told me in Salt Lake City, so we introduced his letter to the committee.

Then, before voting, the committee had a very long discussion. It finally became clear that we were going to carry it, so then Gordon called for the vote and the vote was kind of anticlimactic. Everybody had expressed their opinions by then, so they knew how it

was going to come out. The measure was rescinded, which was one of the few times that's ever been done.

MESA's Concerns with Arsenic, Lead, and Mineral Fibers

Arsenic

Swent: The arsenic point was very touchy. Arsenic as arsenopyrite is a very, very common mineral in mines. It's an iron complex, iron arsenic sulfide. It's very stable, it's not soluble in body fluids, and nothing has ever been found of an unfavorable matter. But arsenic trioxide has been shown to be carcinogenic. So OSHA, the Occupational Safety and Health Agency, had adopted a regulation on exposure to arsenic. They had expressed it in terms of arsenic, not arsenic trioxide, just all arsenic, generic, anything containing arsenic. And MESA wanted to adopt a similar regulation. Basically outside of the mines OSHA's regulation didn't affect many people. It affected smelters, but they had arsenic trioxides, which had to be controlled anyway.

Asarco, the company that operated the Tacoma [Washington] copper smelter, had a Dr. Pinto testify. The Tacoma smelter, incidentally, was one built to specifically treat high arsenic copper concentrates. So they had the arsenic problem there for years. Dr. Pinto stated that in the concentrate receiving section of the smelter they had never really had any problems, because the concentrates when they came in were sulfides and had arsenopyrite and had not been changed from their original form in the rock. He said their health problems all arose in areas further down the process in the smelter, where by application of pyrometallurgy the sulfides had been converted to arsenic trioxide. So we were able to prevail on that.

Chall: What did you do about that, when you say "prevail"?

Swent: Well, the committee voted against adopting the regulation that MESA had proposed. They had proposed a limit on exposure to generic arsenic, regardless of form.

Chall: I see. And you were concerned only with the trioxide. You didn't settle on how much arsenic trioxide was to be in the--

Swent: Well, arsenic trioxide doesn't occur naturally.

Chall: It just occurs as a result of a process.

Swent: Yes, it occurs as a result of application of high heat. Normally you don't get this high heat in the mining operation. Now there is one exception to this, and that's a mineral called enargite, which is a mineral that is arsenic and copper; I think it's a copper arsenate. And it's fairly unstable. When you drill it it does break down under the heat of the drilling rods and creates arsenic trioxide.

The only place where it ever occurred or was mined in any great quantities was in Butte, Montana. Two or three people, including James Cleveland of Kerr-McGee who worked there one time as a miner, have told me that when they were drilling in these places where enargite occurred, they normally wore respirators for protection against dust anyway. But when they came off duty they would have a ring of white around the edge of the respirator. This would probably be arsenic trioxide, because arsenic trioxide is white. But that's the only case I know of where you could have arsenic trioxide in a mining operation.

Lead

Swent: The same thing is true of lead sulfide or the common mineral that's called galena. This is also a very common mineral in mines, not always economic, but it's frequently present in underground metal mines. There were absolutely no studies implicating lead sulfide with lead poisoning. All the studies on lead poisoning were based on lead oxide or lead metal. We were able again, based on this and another argument, to hold off and keep the committee from passing that proposed regulation.

At one point the industry members asked MESA what figures they had to support the need for these measures. They had not produced any figures or any studies or anything to support these. Duncan Holaday gave a very dramatic and impassioned statement and plea. He said, "There are no figures. That's the problem!" And what he went on to say was that there is no system in the United States for tracking occupational diseases. It's a very difficult thing to do, because people are exposed to this or that when they work and the effects sometimes don't come for years afterwards and they've left the company and they're working somewhere else, or they may not even be working when they get their illness. And the company may not know that this is the result. And there's no gathering of statistics. The reporting that they're supposed to do under the act--you're supposed to report all occupational disease cases, but

you can't report them if you don't know about them. So Holaday was very wrought up over this, and said, "Something should be done about it." But to my knowledge it still hasn't been done, and that's twelve years ago.

Chall: He was thinking something should be done about it in terms of statistics?

Swent: Yes, of trying to gather information. Because for instance they were trying to pass these two regulations and they had no data on them.

Mineral Fibers

Swent: The other item that was up for consideration was what they called mineral fibers. The term mineral fibers is an offshoot from asbestos fibers. Asbestos fibers of sorts had been found to be carcinogenic. OSHA and NIOSH wanted then to go into other minerals that were fibrous in nature but weren't necessarily asbestos. These were called mineral fibers to distinguish them from asbestos.

Chall: I see. What minerals were they?

Swent: Well, there are many, many minerals. There's one quality that some minerals have, and that's called cleavage. They have planes of weakness. One plane of weakness is called a cleavage surface. If a mineral has a cleavage, it's all in the same direction, just in planes that are parallel to each other. It can be any thickness between planes. So that you get very, very, very fine sheets, you know, like mica is two one-cleavage minerals, biotite and muscovite.

Some minerals have a second plane of weakness, or cleavage plane. When these break you get long, slender, acicular, needle-like fragments. These are similar in a way in appearance to asbestos fibers, and they are called mineral fibers. Sometimes there's even a third plane of cleavage. Galena is one mineral that has three planes of cleavage. They're all at right angles to each other so it always breaks in cubes. Common sodium chloride, salt, also has three planes of cleavage at right angles--if you look at salt grains with a magnifying glass you'll see that they're generally cubic.

At any rate, the effort was to try to pass a regulation limiting exposure to mineral fibers.

Chall: How could that be done?

Swent: You can measure them in the air. But again, they had no facts or figures to support the need for it. We had retained a Dr. Clark Cooper who had formerly been with the Public Health Service and then had been with the University of California Public Health School and then had gone off into private consulting work as an occupational medicine consultant. We had retained him and I had used him in the radon daughter business for quite a while. Anyway, we retained him to be a witness on this. He had very good arguments, and one of them was that they had worded this proposed regulation in such a way that even soluble mineral fibers, those which would be soluble in body fluids, like salt, would come under that regulation. And this began to get ridiculous.

He thought he had such a case of making it look ridiculous that he took Aurel Goodwin out to lunch one day before this came up at the committee meeting and told him about it. So when they finally came around to this subject, after very little discussion, Aurel got up and said that MESA was withdrawing its mineral fibers proposal. So it was withdrawn and didn't go forward.

All Mine Safety Administration Located in the Department of Labor, 1977

Swent: This was basically the last eventful advisory committee meeting. I think I already mentioned, in 1977, they had some coal mine accidents that brought a lot of attention in Congress to the Mine Safety Acts. The result was that the Coal Mine Act was revised. And then the 1966 Metal and Non-metal Mine Act was repealed completely and outright. They changed the coal act, wherever it said "coal mine" to say "coal and other mines" so that all of them became then consolidated into one act.

Chall: I see. Did that change the way the committees were set up or the regulations or anything at all?

Swent: Oh, yes, there were fundamental changes. The advisory committees were no longer authorized, but all existing regulations remained effective. In addition they changed it all over into the Labor Department. So they put the administration of both the coal and non-coal into the Labor Department. So they got a new name, MESA was no longer an acceptable name. The Department of Labor had to have its own name.

Mine Safety and Health Administration [MSHA]

Chall: What did it become?

Swent: Since they already had what is called OSHA--that stood for Occupational Safety and Health Act or Administration--they called it MSHA, the Mine Safety and Health Administration. So we have MSHA and OSHA in the Department of Labor, each with its own assistant secretary of labor who answers to the secretary of labor.

The Impact of the Change on the Mining Industry

Swent: Yes, there were some great changes. In the first place, the enforcement tools were much greater. They set up a system of civil penalties where if an operator was cited by an inspector, the citation went to an office of MSHA that then calculated a fine for that particular infraction, then sent the company a notice of the fines. The company would have a chance to appeal these or to contest them if they wanted to. Otherwise the fines were payable.

And they had a number of criteria to go through to establish the size of the fine. One was the seriousness of the violation, whether any negligence was involved, whether it was a repetitive thing or had not occurred before, what the overall number of citations that an operator received were, a number of factors. And this took quite a few months to work out. So the act was passed in November of '77, but didn't become effective until March of '78.

Chall: Was there a better or different kind of inspection? Was it more often or did it change?

Swent: No, the basic inspection requirements weren't changed. They were supposed to inspect all underground mines at least four times a year. This was the same as the old law had. They did away with all the state plans. The old federal metal and non-metal act had had a chapter in it that allowed the Department of Interior to make agreements with states to do the inspection. This was no longer allowed under the new plan.

Chall: Was it more adversarial in terms of labor and industry now than it had been before?

Swent: Oh, <u>much</u> more so, yes. It became a field day for lawyers, because you immediately got into the situation of do we object to this one or not, and what's the legal precedent. Sometimes you could get a

citation rescinded, but the inspector himself was not permitted to do this. You had to convince somebody else to rescind it. There were lots of legal precedents that began to be set. If you appealed or objected to a fine that went to the officer who had initially set the fine. If he wouldn't change it, then you had the choice of paying it or asking for a hearing before an administrative judge.

These hearings were expensive and took days to do and sometimes months to schedule. They're a regular court procedure, basically. If you lost at that you could appeal to what was called the review commission, which was an overall supervisory quasi-legal commission that received all these appeals and would judge them again. You had formal hearings before them, court hearings. If you lost at that level, then you could go into federal court. So those were the various stages of appeal.

Swent Develops Plans to Cope with the New Procedures and Litigation

Swent: Now the coal people had had experience with this type of thing for several years. The procedures had been put into the 1959 Coal Act, so they had had some experience with it and had developed their organizations on how to cope with it. So I went to some coal companies to find out how they organized for handling the citations and appeals.

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I talked to Brad Johnson at the Mining Congress for some suggestions as to who I could go see to talk to about how they handled all these procedures. One of the companies he referred me to was U.S. Steel, which had coal mines but also iron ore mines. They had been on both sides and now they were all going to be in the same boat. I had a very interesting discussion with them. They gave me all their forms that they used and we went through all their controls.

Chall: That means they probably had to set up more legal departments or personnel in the mines than you had been used to in your set of mines.

Swent: Yes, a great deal more.

I then retained a lawyer in Washington, Timothy Biddle, who was with a firm called Crowell and Moring. He was very capable and had been recommended by a number of people, including the U.S.

Steel people, as an attorney in case you had to go to litigation on any of these, any administrative law judge cases.

Chall: For whom were you hiring him?

Inspectors at Lead

Swent: Homestake. At least for Lead it was a primary consideration at that time. In Grants they wanted to use a partner of Leonard Pickering's in Albuquerque. And this was all right, he knew his stuff, too. Grants never had the problems with MSHA that Lead had. We had a particularly severe problem in Lead. The regional office of MSHA and of MESA before them had been in Rapid City, which is about fifty miles from the mine. Many of the inspectors were ex-Homestake employees. This was a real problem because all of them, or many of them at least, had sort of chips on their shoulders about Homestake and were very much out to get the company and this sort of thing.

Now, MSHA and MESA before them had had rules stating that nobody could inspect where they had formerly worked for a year-and-a-half after they quit. But after the year-and-a-half, why, they were free to come in and do it. What had happened in Rapid City was that virtually all of the staff became ex-Homestake employees as they passed a year-and-a-half. They would request transfer to Rapid City because that was near where they had been raised and they wanted to live there. So this was a real severe problem.

The head of that office was a fellow named Bill Donnelly, whom I had known in New Mexico, an inspector. This was basically his last assignment before he retired. He wanted to continue living in Rapid City. There were occasional movements by MSHA to change the location of this regional office and to have it elsewhere. He resisted all of these because he wanted to stay there. Homestake was the only mine, basically, that they had to inspect--that's why MSHA wanted to change it to somewhere else where they would have more mines to inspect. But to keep it there Donnelly felt he had to dredge up enough business to justify keeping the office going.

So it was a very adversarial situation with those guys. We took it up. We had attorneys in Lead, but they had no experience in this. What I wanted to do was to bring Tim Biddle in and have him train our local attorney, a fellow named Robert Amundsen, in handling these types of cases, which in the long run we did. We did a lot of litigation, using Biddle at first, and Amundsen always sat with him. As he got more experience we gradually phased Tim

Biddle out, because he was quite expensive and we had to pay his expenses from Washington and that sort of thing. A very pleasant character; I liked him very much.

Chall: They eventually moved the headquarters out of Rapid City?

Swent: Still there. But Donnelly has retired. Things are going along a little better.

Asbestos and Cancer: Homestake Research, 1970s-1980s

[Date of Interview: July 8, 1988] ##

Chall: Well, let's see. We were going to talk about asbestos today.

Swent: Yes, all right. I prepared to talk on asbestos. I think that may take the full morning.

Reserve Mining Company and the Tailings Lawsuit

Chall: You did have something to do with asbestos. I mean, Homestake was involved with asbestos.

Swent: Oh yes, very definitely. In the early 1970s the Reserve Mining Company up in Minnesota, which is a taconite or iron operation, was mining a high tonnage of taconite and recovering the iron from it and then dumping the tailings in Lake Superior. There arose some concern when it was found that some particles from these tailings were getting into the Duluth water supply. I don't know, but I suppose Duluth was getting its water from Lake Superior. The word got around that these particles were carcinogenic and could cause cancer.

They were identified as being fine particles of a type of asbestos called amosite. Amosite is a trade name, it's not a mineral name. It's a trade name for a certain type of asbestos produced in South Africa, and that's really the only place in the world where it's produced. There are other types of asbestos. The most common is chrysotile, which is a mineral name. That's a common variety of asbestos and is mined in Canada and a few places in the U.S. and other places around the world.

At any rate, as a result of identifying some of these very small particles in the water near Duluth or in the Duluth water supply, quite a furor came up over Reserve Mining dumping its tailings in the lake. So--and I'm not sure whether this came about through any action by the state or just what--they began to prepare a tailings disposal site on land. And this took quite a while, but in the meantime EPA got into the act and the state got into the act and filed suits. I'm not really sure what the suits were about, but I think they were to impede Reserve Mining from using this particular tailings site.

Chall: Was Reserve Mining a Homestake company?

Swent: No, they had nothing to do with Homestake, absolutely nothing. It's an independent iron ore company. In the state court Reserve won their case. They came out fairly well vindicated that there was really no evidence that these particles were carcinogenic and they could go ahead and build their tailings pile on the site selected.

Chall: You mean, that they weren't even considered carcinogenic in the water?

Swent: No. Well, I don't know whether in the water or not, but they weren't considered carcinogenic as such, at least by the state. Then EPA had a suit filed against Reserve in federal court. This got to be quite a cause. The judge was a Judge Lord. I don't remember his first name or initials, but he apparently was going to ride this to political heights. He made lots of statements outside of court, public statements and things, to the extent that he compromised himself and was finally taken off the case as being prejudiced. Reserve had to appeal for this; he didn't take himself out. But they appealed to higher courts and had him removed.

The Physical and Chemical Properties of Asbestos Explained

Swent: Reserve Mining Company got lots of publicity, at least in the mining world, throughout the country. Everybody knew about it in the mining world. The connection with Homestake was that the mineral--there was a mineral in the taconite that was forming the fibers, very small fibers. The mineral was cummingtonite-grunerite. Now these are mineral names. Cummingtonite-grunerite is a continuous series of minerals. They're iron-aluminum silicates with variable amounts of iron and aluminum. Where it's in the low end of the iron end, where it's mostly aluminum and very little iron, it's called cummingtonite. Then when the iron gets

quite high and there is very little aluminum it's called grunerite. And the proportions of iron and aluminum vary continuously. They don't vary by steps or anything like this. It's just continuous variation between them. So you're liable to find the mineral with one percentage here and in another place with another percentage. But they're the same series.

Cummingtonite and grunerite have the same chemical composition as amosite asbestos. But having the same chemical composition does not make them necessarily asbestos. The generic definition of asbestos requires that the product be in long fibers that are flexible. And of course it's fireproof; that's its principal virtue. Cummingtonite and grunerite occur both in what we call asbestiform fashion and in non-asbestiform fashion, meaning that it can occur in long fibers with bundles that are somewhat flexible, and is truly like an asbestos, and that's why they call it asbestiform. But it also occurs in a non-asbestiform variety where the typical occurrence is in sort of roses of crystals, where they're radiating out from a point and they're actually quite pretty. But this is a crystalline form and doesn't break in fibers. They're not parallel, they're radiating out away from each other and they break into very small cleavage fragments. I believe I explained cleavage fragments, did I not, the other day?

Chall: I don't remember that term.

Cleavage Planes

Swent: Well, many minerals--I think I explained about galena and halite having cleavage planes that make them break into little cubes.

Chall: No, I don't think so. I don't remember that.

Swent: All right, I'll have to go back then. Cleavage is a property of certain minerals whereby they break on a plane--or they have a plane of weakness--that's generally at some fixed angle to the axes of the crystals. Every crystal has a set of axes. A cleavage plane is just a plane of weakness. Mica, for instance, is probably the most commonly known cleavage element. Muscovite and biotite, commonly known as isinglass, they are just a result of a one-plane cleavage. It gives these very fine, thin leaves that are translucent, particularly in biotite.

Some minerals have more than one cleavage. They will have cleavage in different directions. The example I gave the other day was galena and halite, which is common salt, have three cleavages

which are at right angles to each other so that they break into cubes. When you break it up it always breaks in cubic form. When the crystals grow, the crystals grow on their normal axes. Crystal face is different than a cleavage face. The crystal face is usually duller because it's the finished product and has had a lot of weathering, whereas a cleavage face is brighter and shines usually, because it's a fairly recent thing. And it won't last long. Usually the mineral will get hit or something will happen so that it breaks again.

The cummingtonite-grunerite is a member of a family of minerals called amphiboles, all of which have two strong cleavages. So the cleavage fragments--what one gets with these two cleavages--are long narrow things. They are similar to fibers in form but when you get them under the microscope they are not. They're readily distinguishable because they don't have the real fiber structure. They'll be irregular, whereas fibers are quite regular in their bundles, parallel to each other. But unfortunately having the same chemical composition leads a lot of people to believe that the non-asbestiform variety is the same as the asbestiform variety.

The Homestake Connection: Studying the Miners at Lead

Swent: At any rate, they had cummingtonite-grunerite in the taconite ore at Reserve Mining. The Homestake formation in which the Homestake gold ore occurs is a cummingtonite schist. Some grunerite does occur with it. The cummingtonite isn't always just cummingtonite. It grades, and there is a little bit of grunerite there. The asbestiform variety is extremely rare in the Homestake mine. It was described by geologists in the early 1920s as being found in some of the upper levels. Some specimens are in the Homestake mineral collection, but in modern days I couldn't find anyone who had ever seen it in place or who could find any in the mine ten years ago.

Chall: It has to be seen under a microscope?

Swent: No, when it occurred--such as the specimens that they had in the geological collection or mineral collection--you could see it easily with the naked eye. I had talked with one of the geologists years ago who identified it or described it. He had told me it occurred in bunches, but that it was quite rare. He had only seen it a few times. That is James Noble who is still alive but is quite elderly now. He's close to ninety, I guess.

So EPA people began getting the idea, well, maybe we should study Homestake miners and see what their health problems are, if there's an excess of cancer there. At one point--I guess it must have been early 1974 or maybe late 1973--we had a request from an epidemiologist named J. Corbett McDonald at McGill University in Canada. The University and McDonald wanted to do a study of Homestake miners. The University was to pay for it, and they wanted the right to publish. They said they did not want or have any industry money. This was to be an independent study. What they wanted was to do an independent study that would have credibility in not being an industry-sponsored study.

So Don Delicate, who was the manager at Lead at the time and who received the proposal from them, approved it. At the time I didn't know about it. I was working in San Francisco. But at some point he told me about it, not long after he'd okayed it, which was all right. I would have approved it, too; I wasn't objecting to that. But it was an important thing, important enough that I thought I should tell Paul Henshaw, who was president of the company. So I told Paul and he thought it was important enough that we should tell the board. So at the next board meeting both Don Delicate and I were present. We told the board about it and we got some very interesting reactions. They all knew about the Reserve Mining case and they all said, "Oh, we don't want to be associated with Reserve Mining, they've got a terrible record on environmental matters. If we're seen as helping Reserve Mining, it's just like being seen walking down the street with a whore," that sort of thing.

Chall: What did the board do?

Swent: They didn't do anything. These were just remarks that some of the board members made.

Chall: Yes. It was already established. But you could have called the research off, I suppose. Had it gone that far?

Swent: Yes, it had started. Shortly after that we got a request from Dr. Victor E. Archer of the U.S. Public Health Service. It's the same Dr. Archer that I had met and knew through the radon daughter work on uranium miners. And he was asking for us to give permission for the Public Health Service to come into the Homestake mine and do a study of Homestake employees for the same purpose. So I wrote him and said that Homestake had agreed to let Dr. McDonald do this study and we didn't think it was necessary to do two studies. Dr. Archer wrote back and wanted to know if they could participate in the McDonald study. So I replied that as far as Homestake was concerned they could participate, but that they would have to take it up with Dr. McDonald and see if it was all right with him.

Well, they never even talked to McDonald, I found out later. I asked McDonald some time later and he said no, they'd never approached him. We didn't hear anything more from the Public Health Service at the time.

Then in May of 1974 I got quite ill with vasculitis, which I discussed earlier, and was out for six months.

The National Institute for Occupation Safety and Health (NIOSH)/Public Health Service Shocking Silicosis Report, 1975

Swent: I returned to work on the first of January, 1975. Sometime in March--let me just see here now. [referring to notebook] Oh great, I didn't date it. Well, it was in March of '75 however, because my next note is dated April 3. I was called on a Sunday at home by a man named Dean Gillam who told me over the phone that he was with the Public Health Service or NIOSH at that time. NIOSH, the National Institute for Occupation Safety and Health, was part of the Public Health Service. He was going to give a paper the next day at the New York Academy of Sciences about a study on the Homestake mine. He was calling me to let Homestake know in advance what was going to be in the paper. He said they had studied 439 men.

Chall: Was this the McGill study?

Swent: No.

Chall: Whose study was this?

Swent: This was one that the Public Health Service had done, and this was the first I knew of it. He went back and said they'd used the 1960 silicosis study data. For background there I have to say that in 1958 through 1961 the USPHS and the Bureau of Mines did a--

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--silicosis study throughout the metal mines of the country. At that time they had gone to each of the mines that they'd selected, including the Homestake mine, and given physical examinations to workers who volunteered to be examined. Took chest x-rays, among other things, and interviewed them on their job history and medical histories. They had forms that they wrote down the answers on. So what they had done, Gillam said, was they'd gone back to the records of the Homestake miners that they'd gathered in 1960. It was 1960 when they actually came to Lead. That was when I was in

Grants. And they had examined 848 people there. And for this new study they had gone back to those records and the x-rays and selected 439, the criteria being that they were selecting those who had worked five years underground and not worked elsewhere as of 1960. Then they had analyzed these, followed up through 1973 on these 439 men, and found those who had died and who was alive. Of those who had died they had gotten the cause of death. Over the phone he said there were ten lung cancers versus 3.95 expected, using the U.S. adult white male population as a comparison group, which meant there was a very significant excess. And they had also found that there was an excess of silicosis, ten cases of silicosis versus about three-and-a-half expected, and an excess of accidental deaths. He said that the mine would not be identified in their talk, it would just be referred to as a metal mine.

So a couple of days after that we began getting all sorts of calls from the press and people around Lead and everything. It turned out that they didn't call it a metal mine, I think they called it a gold mine. [refers to his scrapbook] Let's see, I don't know that they gave the state. But anyway, they did give enough information that people immediately identified it and knew it was Lead and the Homestake mine, so they began calling us and asking all sorts of questions.

We finally worked up a statement to give out to the press and to the public about this study. I then talked to Gillam again on the third of April and asked him to send me a copy of what he had given. At first he said, well, it was pretty badly marked up and they were going to write it up into a clean copy. And I said no, send me what you had there. He agreed to do that and he sent me the notes that he had read from. As he said, they were badly marked up, but anyway, I had that.

Then ensued a tremendous length of time. The proceedings of the conference were to be published in a volume. This is an annual occurrence and they wanted to publish all these papers. There were several authors on it. Gillam was not the only author. In fact, Gillam was just a statistician. For some reason they assigned him the lead as the first author, so that in the technical literature the paper is cited under his name, but he is basically a statistician. The other authors were John Dement, I think he had a master's in public health; a Richard A. Lemen, I'm not sure what his degree was; and the real writer in this was Joseph K. Wagoner, who had, I think, a Ph.D. in epidemiology. And Victor E. Archer, Dr. Archer, who was an epidemiologist, and a Hector P. Blejer, whom I don't know anything about.

Wagoner apparently was the guiding light behind it all. Subsequently four different drafts came out, although I understand

there were six, but we only got hold of four of them. At one time I called the editor for the proceedings at the New York Academy of Sciences and asked if he had a copy of it yet. He was really upset and he said, "This is the worst situation I've ever had. We cannot get a draft out of those people. They're not--"

Chall: You mean they were still revising?

Swent: They were still revising.

Chall: Even after they'd made a lecture on it?

Swent: Yes. So we kept getting these drafts, as I say. They all came out of Wagoner's office; he was with NIOSH in Cincinnati. They made major changes. In the notes that Gillam sent me and in the presentation that he made verbally they also reported on the examination of the x-rays that were taken in 1960. And they said that they had an excess of rounded opacities and that these were looked on as being an indication of asbestosis. This was eliminated from the draft. Dr. Cooper said that was absolutely ridiculous, that there was no way that that could be a scientific finding, and he was right. They did eliminate that. That was one thing that got completely eliminated from the final draft.

Then in the final draft they changed the comparison population from the U.S. population of white males to South Dakota white males. Of course, that makes a difference, makes the situation look worse, in that the South Dakota lung cancer rates are lower than national rates. But many of our miners were not South Dakotans. They had been raised elsewhere and went to live elsewhere after they left. So we didn't think that was justified.

At any rate, it was a long time before the volume finally came out. It finally came out in 1976, somewhere around June of '76. This is it. [shows final printed study] This book isn't entirely about Homestake. Their paper was just one of many papers in the volume. This book has lots of different papers.

Homestake Evaluates the Research and Prepares a Rebuttal

Swent: Well, in the meantime I went back and asked Don Delicate what had transpired with the McDonald study, because I had lost track of it while I was off sick. He said, "Oh, I cancelled that because of the attitude of the board." So this was the first I knew of that. We knew we were in trouble as a result of all the phone calls and the pressures that we were getting, so they had a consulting doctor

up there, Dr. Robert F. Bell, who ran the School of Occupational Medicine at the University of Colorado in Denver. He was acting as a consultant for Lead. They had retained him primarily on silicosis matters to analyze x-rays and to judge whether people had silicosis or not. But he was called into this, and they decided to have him do a study of lung cancer in Lead miners, that is, miners in Lead. He undertook to do a small study there.

Then we had a big meeting between Paul Henshaw, Don Delicate, and Dr. Bertheau, who was our head physician in Lead, and Pete Fuller who was the attorney in Lead, who had taken Ken Kellar's place. We reviewed all the data that we had and the attorneys requested all sorts of things from NIOSH. They wrote them a long, long letter. They didn't get all that they asked for, but we did get a listing of the number of employees. It had now gone up by one, to 440; it was no longer 439. And the number of deaths had gone up by one, to 71 instead of 70. Anyway, both had increased by one.

They sent us a listing of the smoking histories of these men, but not identified, just a listing of 440 smoking histories and as to whether they were dead or alive, and a strip off the part of each death certificate that shows the cause of death. It didn't reveal any names nor the state in which the man died or anything of that nature, just a little strip. That was all that they sent us, and then an explanation of their computer program, of how they had done the calculations to compare.

One thing, when the paper began to take form, we found it was no longer called lung cancer, it was called respiratory cancer. And when we got hold of those ten cases we were quickly able to identify them. They didn't give us the names but from our own records in the hospital, the medical records, we were able to identify who those ten were. It was found that they weren't really all lung cancer. There was one that I think was a nasal cancer. Another one was found not to be lung at all, the diagnosis had been changed by the doctors. The first diagnosis which appeared on the death certificate was lung cancer, but after an autopsy the doctors decided it was a different type of cancer and it wasn't anything to do at all with the respiratory organs. But this had not been changed on the death certificate. So at that point the doctor then did send in a correction to the South Dakota vital statistics office and they changed the death certificate. But too late, of course; by then it had been in the study.

Anyway, they had several different types of cancer, and they'd lumped them all into the group called respiratory cancer. Many years later, when I got hold of enough data that I could do it, I reanalyzed the group and found that if you calculated the observed

and expected for each of these individual causes of death rather than lumping them together, you had a situation where you would have maybe one case of the lip cancer compared to three-tenths of a case expected. Well, that's not statistically significant. But when you lump four or five of these different causes of death up together to where you get up to ten deaths, and there's a slight excess in each one that is not statistically significant, by the time you add them all together then there is a statistically significant excess. This was like adding together defects in a small number of pears, peaches, apples, and oranges and calling the result defects in fruit. Why they did that, I don't know. I suspect that it was for the purpose of effect, because the breakdown could have been made in the individual causes of death if they had wanted to.

Based on this paper-- well, I shouldn't say based on it, because the Department of Labor was at that time proposing new asbestos regulations anyway. But in their proposal they cited the Gillam et al paper that was in press. We looked on this as being a very debatable procedure, because when something is still in press it has not been subject to critical review by the rest of the world. To rely on it scientifically in forming regulations we thought was not warranted.

Revising the Statistical Base

Swent: At any rate, we prepared a statement that we sent in to the Department of Labor when the final comments were due on their proposed regulations in April of 1976. We prepared a set of comments on it and went into a great deal of detail, and emphasized several things, one being the smoking histories. From the smoking histories they had sent us we were able to show that the group had more smoking than the average population. It was almost as high as the uranium miners, and the uranium miners have been found to have very excessive smoking, that is, cigarette smoking. And that as a result of their excess smoking, the expecteds would be increased over the U.S. male white population by 49 percent. So we figured that for the Lead miners there would have to be a correction also. At the time we didn't have any data to calculate how much of a correction there should be, so we just sort of estimated it from the relationship of the smoking histories to the uranium smoking histories and said maybe the correction should be 40 percent. And if you got a correction of that nature, why, this reduced the excess tremendously.

I wrote this thing up and sent it in to the Department of Labor. At the time I thought it was a pretty good piece of work, and I was proud of the accolade that I got from Bill Langston, who was the Homestake general counsel. [leafs through multi-paged letter] He sent me my copy back and said, "This is a superb piece of work. You leave them without honor, dignity, or pants. Congratulations." [laughter]

Chall: What did you hear from the department? How did they use it?

Swent: We never heard anything from them, but they deferred action on their asbestos regulations for quite a while.

Chall: I see. They must have taken it into account then. Could you be sure?

Swent: Well, I never knew really. Then the next stage on it was we wanted to get this published so that it would get wider distribution. We sent this to as many interested people as we knew, and I talked with Bernie Roy, who is the chairman of the Mining Congress Occupational Health Committee that I was a member of and asked for his suggestions. And he said, well, he thought the easiest one to get it printed in would be the American Industrial Hygiene Association journal, that they were having a conference in New Orleans in May of 1977 and he would see if they could get me on the program there.

Well, we worked on this, and eventually I did get on the program. So we rewrote the Department of Labor thing and went down and gave the paper. It was a last-minute thing. I wasn't scheduled as a speaker, but they scheduled me as a substitute speaker in case anybody dropped out. They had so many papers that they always had some dropouts, and I did get to give it. But then it came as a sort of a surprise. The subject hadn't been listed, nor the topic. So I gave a revised version of our comments to the Labor Department. That was on May 26, 1977, in New Orleans. There were a number of NIOSH people, of course, attending. One of them was John Dement, who was one of the authors of the paper. Somebody apparently had told him that I was talking and talking about this, so he came in. He hadn't heard all the paper, but he did give a rebuttal, which wasn't too good, but he did speak.

Chall: He was then trying to justify their own--?

Swent: Yes, still trying to justify it.

McDonald at this point had his data. Before the contract was cancelled with McGill he had gotten all the data that he needed from Lead but didn't have enough money, because apparently when

Homestake cancelled with McGill, McGill cut off his money. So he didn't have enough money to finish and publish the study. He did not want to accept any industry money. I suggested that Homestake pay him. He only needed something like $10,000 or $20,000 to finish it, and I suggested we do it, but he didn't want any industry money. Then he wrote to NIOSH and asked them. Now, he kept saying, "I have the data." He said, "I think when I finish analyzing it that it will show no excess of lung cancer." Well, he probably shouldn't have said that, because NIOSH turned him down.

Chall: [laughter] I should think so!

Swent: NIOSH turned him down, but interestingly enough, NIOSH by then had had enough complaints about this study that they had said they were going to do another study in Lead.

Chall: The McGill study would have used later data, too, wouldn't they? They had set up their own data then.

Swent: Well, they would have used both earlier and later data.

SRI Develops a Second Study for the NIOSH/Public Health Service

Chall: Later than '60.

Swent: Yes. It was based on people up to 1973. And we had our senators and representatives complaining to NIOSH about this study also. So at any rate, NIOSH two years later, after the first paper, designed a new study and put it out for bid. They wanted an outside contractor to do it instead of doing it themselves. And SRI, the Stanford Research Institute in Menlo Park, was the successful bidder. They had dropped the name Stanford Research Institute, because they got into a fight with Stanford University over the use of the name "Stanford," and called themselves just SRI. Anyway, they were the successful bidder, and Dr. Archer was to be the project officer for NIOSH to follow the study.

Now, NIOSH had a problem with this study in that under the laws as they existed at that time, they did not have the right of entry into the mine, and couldn't get a right of entry for SRI to do the study, unless we consented to it. So this gave us a negotiating point, but it wasn't too strong, because this was now in late '76, and things were moving in Congress to get the Mine Safety Act amended, and among the amendments that had been proposed was to give NIOSH the right of entry into mines. So we realized that we didn't have a great deal of time here.

Anyway, we negotiated on the basis that, without ever using it as a direct club, they knew perfectly well that they couldn't do the study until they got the right of entry. So we negotiated with them. We had a big meeting down in Cincinnati. Dr. Gaffey, who was the SRI man in charge of the project, was there, and a fellow named Marco Vestich from the United Steelworkers; he was their assistant director of safety and health. I had known him a little bit from some of the other safety matters, and from the Metal and Nonmetal Mine Safety Act advisory committee meetings. And of course, Joseph Wagoner of NIOSH was there; Dr. Archer was there; Dement was there--in fact, he kept the minutes of the meeting--and the fellow who chaired it was named Bobby Craft.

Establishing the Ground Rules, 1976

Swent: We discussed lots of procedures. Basically the study was to be divided into three parts: first, epidemiology, which was just the study of miners, and they were initially proposing to study miners who had worked one year or more--

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--from January 1, 1940, through December 31, 1964. That was the epidemiology study.

Then secondly, they were going to do a medical study which consisted of sending a representative up to take sputums of about 500 of our employees, preferably employees who had been there a good many years. Actually they went into retirees to do this.

Then thirdly, they were also going to examine preserved lung tissues of some of those who were deceased to determine whether--there was one controversy: we had a lot of silicosis there. Wagoner had claimed that, well, our doctors were expecting silicosis so they probably had overlooked asbestosis, that the two were easily confused and that the doctors probably, since they expected silicosis, had overlooked the asbestosis. The third part of the study was to examine tissues to determine whether or not this was true.

Chall: Did you say tissues of people who were deceased?

Swent: Yes, and had had autopsies. Most cases of silicosis, if they suspect it they do an autopsy, because there's usually a claim and that's the best way to establish a claim. Then they would do an industrial hygiene study of the mine to determine what the actual

fiber concentrations in the air were. In the early study they had used a fiber survey that had been done by MESA in 1972 or '73, which didn't necessarily represent conditions in 1960 when the men were being exposed. But they had used that and they had found very low concentrations of fibers. Now the fiber was defined at that time as any particle longer than ten microns under a microscope, which is quite a long particle. And they had what they called a three-to-one aspect ratio criteria. It means that it had to be at least three times as long as it was wide. Generally something that was as long as ten microns would be very, very elongate.

Anyway, they had found in this survey that MESA did that the average of all the fiber readings that they took was .36 micron in length. Well, this is infinitesimal. But their point was, well, not only do these long fibers cause cancer--they had already established in asbestos studies that the long fibers cause lung cancers. Now they were saying that these very short fibers could cause lung cancer. This was revolutionary. It really was quite a new thought. This was what the paper said, and this was the only paper that said this.

Chall: Was that the original NIOSH paper that said it?

Swent: Yes, the original Gillam paper. So they were going to do an industrial hygiene study and not only check the fibers, but they were going to check all sorts of other contaminants, silica dust and radon daughters and a whole host of items. We negotiated the right to publish the results if NIOSH didn't. We insisted and they agreed that the sputums would be read by Dr. Saccomanno in Grand Junction, in whom we had a lot of confidence.

We agreed for the computer analysis that NIOSH was not to have access to the names of our employees except for the dead people. They had to have the dead people because they would appear on the death certificate, in order to get the death certificates. But those who were alive, they would not have the names, they would only have an identification number. SRI was to prepare the computer tape and send it to NIOSH for analysis on their computer, but the tape would have no names on it. And they didn't need the names to do the analyses. SRI was to collect the death certificates and send them to NIOSH for coding by cause of death so that there would be uniform coding of them. We were to get all copies of all the death certificates after they were coded.

It was an all-day meeting. I had lunch with Marco Vestich; I invited him out to lunch. He was the steelworkers' representative, and we got to talking about this. Of course, the steelworkers had a real vested interest in this because they were also the union at Reserve Mining and they were our union at Lead. So in the course

of our having lunch together I really found out that he was on our side. He did not want these particles to be defined as fibers or to be found to be carcinogenic because they were afraid it would affect a good many jobs. And they had some good health people. They had an epidemiologist on their staff who was supposed to attend the meeting, but he didn't. At any rate, they didn't think that the paper was very good, so they were on our side in this study. So that was a big relief, that we wouldn't have arguments from them.

Then John Dement wrote up the minutes and sent them out. The agreement was supposed to be just the minutes, whatever was put into the final minutes. Well, we had two or three months of correspondence, getting changes in the minutes and this sort of thing, until we finally had that wording down to where we wanted it.

The McGill University Shows no Excess Lung Cancer Death Rates

Swent: In the meantime the McDonald study came out. He had finally found some money somewhere and published it. Actually he presented it at a session that was held in San Francisco. He gave the verbal presentation there and then it was published. He had found no excess. What he had done was to study the Homestake veterans. Now the Homestake Veterans Association is an association of people who have worked for Homestake Mining Company twenty-one years or more. So these were people who had had lots of time with the company. He had taken the 1973 roster of the association and then studied all the members that were listed in it, and followed up to get their dates of death and what they had died of, or whether they were still alive. And he found no excess. He had divided them into several categories: underground, surface, and then high, low, and medium dust exposures, based on just dust, because we had lots of good dust readings.

Anyway, this encouraged us a great deal. So after we got these minutes straightened out, I needed an approval from Paul Henshaw to go ahead. I didn't think I had the authority to commit the company to this study, because it was quite significant, had lots of policy innuendos to it. So I asked Paul Henshaw; I wrote a memo to him summarizing the pros and cons. Basically we thought that we had negotiated as good an arrangement as we could. If we delayed and refused to cooperate later, they would get the right of entry anyway and they would do it, but they would do it under more adversarial conditions.

So I sent this memo to Paul Henshaw. I guess he didn't really know what to do. He had no comment on it. And he came back to me, brought it in to my office one day and gave it back to me. So I asked him verbally what he wanted to do about it. He said, in essence, "Well, what's it going to cost?" I said, in essence, "Well, probably $10,000 in direct costs and quite a bit of disruption." I couldn't put a value on the disruption. But I said, "It's a big issue for both Homestake and the mining industry." So he finally gave a verbal okay. I had had experience with his memory. At the time I didn't know whether he had poor memory or whether it was a management technique of his to always question what you were doing, even after he had authorized it, acting as if he didn't remember that he had authorized it. So I wrote on it that he had approved it verbally on such-and-such a date and initialed it. Actually he never questioned it, but I was really nervous about it.

The SRI Study Moves Along, 1977-1980

Swent: So I wrote to NIOSH basically that we had an agreement, provided that all parties followed what was in the agreed-on minutes of October 20, 1976 meeting. That was April of '77 by the time we got to this point. In May of '77 I took a Dr. Samuel Kaplan, who was an assistant to Dr. William Gaffey, the SRI man in charge of the study, and a man named Mac Kaplowitz of SRI and a girl employee of theirs, whose name I don't remember, and took them all to Lead and introduced them around to the personnel officer and to the manager and to the medical staff, then got them started working on the personnel records. Dr. Kaplan just stayed a day or two and then he came back. Kaplowitz and the girl with him stayed for weeks, microfilming our mine personnel records.

Then SRI assigned a hygienist named Paul Giever to the project. I took him to Lead and we went through the mine and went through all the old readings that we had on dust. We had them back to about 1932. He wrote a report on this as to how they should use the dust records and ventilation conditions to, in essence, recreate the exposures of men over the years that were being studied. I used Dr. Clark Cooper to help me on this. He was very critical of the report, so we wrote up quite a critical reply to it, and sent it back to SRI.

Chall: Now what report are you referring to?

Swent: This was Paul Giever's industrial hygiene report, recommending how to estimate people's exposures. I sent a copy of this to Dr.

Archer as project officer. He agreed with some of my criticisms. In the meantime Paul Giever got a bleeding ulcer and had to leave work, so the work evolved onto somebody else. Then Dr. Archer retired from NIOSH and a fellow named David Brown from NIOSH in Cincinnati was named as the new project officer. He came out to visit SRI, and I went down and met with him at the SRI offices and sort of followed the progress of their study.

In early 1980, SRI finally came up with a draft report. NIOSH had done the computer work on the tape that SRI furnished them. I was furnished copies of the computer runs and had a chance to have our input in it. Now we had kept a record of all the data on the men that we could gather on our computer in Denver, but we had the names available. NIOSH did not have the names except for the deceased people. The study had some 3,300 men in it. Much bigger than their original study of 439.

Chall: Yes, that's a large sample.

Swent Questions SRI Data Base

Swent: But I kept complaining to David Brown that SRI must have missed a certain number of men. I didn't know how many, but we had assigned Dr. Bell to do a study and I now had the list of people that he had put into his study. He had used a different criterion. He had studied all men who were on the underground payroll as of January 1, 1946, and who had worked, or who subsequently worked, five years or more underground. I had the list of men who had qualified for his study. A number of them should have qualified for the SRI study. I had about fifty that weren't there. I complained to David Brown about this. By then the SRI budget with NIOSH had run out and they had written a draft report. So NIOSH did not have SRI write a final report.

David Brown ran what he called a 10 percent sample of their cohort and asked me to check how many men were missing on that. I came up with a number of men missing from it based on the Bell study. So he decided not to make the SRI report final, but to come back and review the records again and see if they could pick up any more. We both agreed that with this doubt as to whether it was complete in coverage, the study could be attacked and would not be a definitive study. He said the likelihood was that statistically, that the lung cancer experience of anybody we'd missed would be statistically the same as in the group we assembled. And in this group we had no excess of lung cancer.

So in August of '81 they came back up to Lead and they brought Mac Kaplowitz. SRI was basically out of it, but NIOSH borrowed Mac Kaplowitz because he was familiar with the records. They brought up two ladies from NIOSH from Cincinnati, and David Brown and me, and we all went up to Lead and went over the records again. We picked up about 200 more men. In the meantime Dr. Bell's report had come out and he had found no excess of lung cancer.[1]

A Follow-Up Study: No Excess of Lung Cancer Rate, 1983

Swent: Now that SRI had used up their budget and was out, Brown decided that on the 200 men that we had that NIOSH would do the follow-up. The follow-up is a very laborious process. They have to find out whether these men are still alive, which ones are dead, find out what state they died in and get the death certificate and then code the death certificate. This is fairly laborious, takes a lot of time. It took them about a year to do this. So in the meantime I took the draft report to the U.S. Steelworkers office in Pittsburgh. Marco Vestich had died, so I met with a fellow named Harry Tuggle. Mike Wright was their top safety man but he wasn't there. I met with Harry Tuggle, and Tuggle actually was the one who worked with the local in Lead anyway. I left the copy of the report with him and we reviewed it there.

Then while NIOSH was doing their follow-up a fellow named Dallas Tinnel, who was president of the local union in Lead, talked with someone from MSHA. He and a couple of other people in the union were at some conference and they talked with an MSHA employee named Max Slade, whom I think I've mentioned before in connection with the radon daughter business. And Slade had given them a whole bunch of baloney about cancer and about the dangers of cyanide in the sandfill that was in the mine in Lead and a number of things.

One of the problems that the company had was that there was intense competition between Dallas Tinnel and another man for the presidency. The other man headed up the safety effort for the union. They were trying to outdo each other by showing who was the toughest against Homestake. So they came around and told about their talk with Max Slade, that this was an intolerable situation and they were giving the company ninety days either to explain what was going on or improve conditions. They didn't really know what they were talking about.

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[1]Additional information on Dr. Bell's study is on pages 773-775.

So I went up to Lead and took the SRI draft report with me and we had a meeting with Dallas Tinnel and Al Winters, the mine manager, and a number of other people, some of the other union people. I gave them a copy of that draft report and also we went over it page by page in detail and showed that there was no excess of lung cancer. The cyanide business was easily disposed of. When we were all through Tinnel apologized. He said, "I hadn't seen this report before. Now that I see it and see the figures, we see that we're in error." He was very decent about it all. He said, "But why didn't you show it to us before?" And I said, "Well, I gave a copy to your international months ago, to Harry Tuggle." Tuggle never sent it out to Tinnel, never communicated, never told him they had it or anything else. He left the meeting really upset with their international.

Chall: So did that end the controversy over asbestosis?

Swent: Well, when the final report came out--it came out probably in '82 or '83--as far as we're concerned, it's ended it. The paper showed no excess of lung cancer, even with the additional 200. Brown was right, statistically there was no change.

Oh, I should go back and say, one of the conditions that we had negotiated and had to be a very definitive one was that we would exclude from this study any Homestake miners who had at any time mined uranium, because uranium also could cause lung cancer. One of the things we had to check out--and this was up to Homestake--was that we knew many employees who had gone into uranium mining. I was one of them. And I use myself as a check, because I was also eligible for the basic study. Well, not quite eligible; I was one day short of the required period. Don Delicate was another one that I could use as a guideline, because he was eligible also. He had gone to uranium mining. Anyway, we eliminated about a hundred people as a result of their uranium mining.

But I don't know what happened, why NIOSH didn't publish this article in a technical journal. Brown had intended to originally, and I think he just got too busy to rewrite it. The report that he wrote was filed with the National Technical Information Service in Virginia. It's available to people who want to get it, but it never got the publicity that the Gillam study did. And we still find Gillam being quoted once in a while.

It did get published in a way in a symposium on silicosis. The last few years they've developed a theory that silica may in some way be carcinogenic, although nothing's ever really seriously been pinned on it. David Brown took the data from this paper and presented it at the silicosis conference, arguing that there was no

relationship between the two. They showed the silicosis and dust exposures and the lung cancer. Lung cancer was a flat rate, didn't respond to the amount of exposure that an individual had, whereas the silicosis cases did. The silicosis cases correlated with the amount of exposure that an individual had to the dust. So it was published in the proceedings of that conference, but it's sort of a backwards way of publishing it.

Statistics and Researchers

Chall: This whole matter of statistics and health is very difficult, isn't it? There are so many ways of dealing with the so-called facts.

Swent: Well, Joseph Wagoner was a real zealot. He came in for a lot of criticism. He was a very bright guy. He's now retired from NIOSH and is working for some environmental causes, for anti-nuclear causes. He's become even wilder-eyed since he retired. But he was very devious and he came under very serious fire in NIOSH. Once he had investigated an asbestos plant in Tyler, Texas, and had obtained data on a confidential basis, medically confidential, which he then turned over to the union, which is a real breach of ethics. Then at another plant, where he didn't have the right of entry, he broke in at night and took photographs. Then he authored a paper on lung cancer in beryllium workers. Finally one of the co-authors on that study wrote a seventeen-page single-spaced typewritten letter to the director of NIOSH, citing that he just could not work with Joseph Wagoner and citing the reasons, how he took over. He said he was the lead author. This fellow was named Bayliss.

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One of the persons Wagoner insisted on including in the beryllium study--and this was a critical case--including a lung cancer case in there of a man who had been examined and accepted for employment, but who never went to work at the facility that was in question. He never worked there, not a single day. But since he had been accepted and put on the payroll, Wagoner insisted on including him in there because it was a lung cancer case.

In talking with Dr. Archer about the Gillam Homestake study--and Dr. Archer and I get along fairly well these days--Dr. Archer said finally, in essence, "Well, Gillam and I started out with this paper, but it got out of our control. Wagoner took it over and we never heard--all of a sudden we'd see a new draft."

Chall: That was the problem of those several drafts that were going on in those years?

Swent: Yes. And Archer washed his hands of it. He told me later that he'd found out that the computer tape that they had used when they thought they were dealing with people who had not worked elsewhere was erroneous in that respect and included people who had worked up to one-and-a-half years elsewhere.

One thing I forgot to mention: Reserve Mining Company was in court with EPA, and EPA tried to use this study against them and brought Wagoner in to testify. So now they refused to give us the names of the participants in the study or any of their records because they said this was medically confidential information and we weren't entitled to it. But in the Reserve case, since this study was being used against them, under court procedures they had the right to know and to examine everything that's used against them. And they had the right to get these names.

So the first thing they asked for was the records on the ten men who had died of respiratory cancer and an additional eight who had died of what they called non-malignant respiratory disease, mostly silicosis. So they furnished the complete records, copies of the 1960 interviews of these men. Then Reserve sent these to us and asked us to examine them and see if they were correct or not. We picked up this year-and-a-half business from those. We found, just among those eighteen, several people who had worked elsewhere according to their own statement right on those records. And then Archer finally admitted that this was true.

Chall: Were the statistics in the Reserve case also suspect?

Swent: Well, they didn't have any studies there. Now just recently there have been several studies come out. Dr. Cooper has worked on these; he's conducted them. He just put out one less than a month ago that's still in draft form, the study of taconite workers in general, not just Reserve, and it shows no excess of lung cancer among them. But you have these zealots that really want to make a name for themselves. Certainly Wagoner did. He was the fair-haired boy of NIOSH for a while and then he became an embarrassment to them.

Dement was a big supporter of his, and I don't know where Dement stands today. I haven't seen him in many years. They did this industrial hygiene survey at the mine in Lead. They had a group of twelve people come up and spend two weeks underground. I was there for the full two weeks while they went through it. Dement was there for most of it. And one of the interesting things, in certain parts of the mine they found radon daughters

that we didn't know about and MSHA, MESA, and the Bureau of Mines had never found. Not in high quantities but in quantities high enough that they were concerned.

As a result I had to do a lot of work on the geology and we sampled a lot of the different rocks in the mine to find out where the source of radon was. The ore body is cut by a number of what we called tertiary age dikes. These are just igneous intrusions of rock through the sedimentary and metamorphic rocks. These dikes do have significantly more uranium in them than the Homestake formation and the surrounding metamorphic formations. It appears that these dikes cut the ore body in the upper levels. As we go deeper we're away from the zone of dikes. It appears that there might have been a significant exposure of employees to radon daughters back in the, oh, up until post-World War II. This could account for some lung cancer, but one problem with the Brown study is it did not have smoking histories.

Chall: They do leave those out, don't they?

Swent: And there was no way we could get them. I was aware of it, but there was no way we could get them because we were dealing with people that had long since left in many cases. We couldn't go get their smoking histories. Homestake at that time did not keep them. They do now. We interrogate all employees when they have their physicals as to what their smoking habits are. So it's a little unsatisfactory there. But there's a tremendous controversy. For years people were waiting for the results of the Homestake study, that is, people that were knowledgeable in this subject. So far there's been nothing passed, no regulation or anything, on the small fibers. They have revised the definition of a fiber and they've shortened it from ten microns to five microns, but the Homestake ones as I say are down to less than one micron size. So those are still not included in the definition, even though that was what Wagoner and his group were after originally.

Chall: That's quite a saga.

Swent: Yes, that probably is about all we should cover today.

Homestake Verifies the SRI Study

[Date of Interview: July 15, 1988] ##

Swent: I do have a few additional things to give on the asbestos study; they're not very long. In that file that I found I got the data that I wanted. The study that Dr. Bell did was done entirely by hand calculations. Dr. Bell was an older generation doctor and he didn't trust computers. So he had his secretary, Ruth Carda, do it all manually.

Chall: Was that with the old-fashioned calculator?

Swent: No, this was just by hand. Well, I think he used a hand calculator for multiplying and dividing. But they looked up the risk numbers for each man individually and that sort of thing. There were reams of paper involved and months of work. It takes a lot of patience to do that these days. And as a result of doing it manually they only analyzed basically five causes of death. Two of them were sort of intermingled.

They analyzed for all respiratory cancer and then for lung cancer separately. Respiratory cancer includes cancer of the esophagus and cancer of the mucal cavities and peritoneum and sinus and that sort of thing. That's all considered part of the respiratory system. But the one of interest was lung cancer. And he did gastro-intestinal cancer, heart disease, and then just all other causes. At any rate, his findings were 8 lung cancer observed versus 8.83 expected, which is a very close check. For all respiratory cancer there were no additional cancers, so it was still a total of 8 observed versus 9.5 expected.

Then in a way I wasn't myself too trustful of the hand calculations.

Chall: [chuckles] You did it your way.

Swent: I arranged to have SRI in Menlo Park, with whom we'd been dealing as the contractor for NIOSH on their study, make a computer tape of Dr. Bell's data and run it on their computer with a life table program called a Monson program. This was developed by a man named Monson. One of the benefits we got out of this was that we got many additional causes of death. It checked out very closely. The lung cancer was 8 versus 8.29 expected. That was even closer than Dr. Bell's, that is, closer to being equal. But the numbers basically checked each other. Then in 1981 I was able through David Brown of NIOSH to arrange to have NIOSH run it on their

computer with their program. They have a somewhat different program. So they did that and it came out 8 versus 8.12. So all three methods really checked each other fairly closely.

Chall: Those aren't significant, important statistically are they?

Swent: No, that's the point. They all checked. And we got data on additional causes of death, which is somewhat interesting of course, the big excess being down in other respiratory diseases which is mainly the silicosis.

Chall: Excuse me, just so I can understand, when you say you got in both cases extra data on causes of death, does that mean that they went into the records a little bit more?

Swent: No, it just means that they had the background data with which to calculate. Once you have a given population that you're studying and you know how all the people died and the cause of death in each one, you can calculate the expecteds for each of these causes of death just by having the background data on the U.S. population or the state population, whatever you're comparing to.

Chall: But it just means that Dr. Bell, because he was doing the hand work, didn't want to go into all the data that was available on the Homestake people.

Swent: Right, correct. He just didn't want to do all that extra work.

Chall: But it was available?

Swent: It was available.

Chall: I see.

Swent: But it's easy to get additional causes of death from a computer, it only takes a few seconds.

Chall: Yes, when you have the basics.

Swent: Yes. The programs have a tremendous amount of this data stored in their memory and they just can pull it out as needed. So that was pretty much the end of that. I've written up a paper which I'm trying to co-author with Dr. Bell and his secretary Ruth Carda on this study, but I've kind of pushed it to the back burner for the last year or so. It's fairly close to completion and I hope someday we'll get it published.

Chall: We couldn't use those tables that were in the volume as examples of what you're talking about, or could we?

Swent: Oh, sure.

Chall: Oh, all right, fine. Let me put a note then that I want those.

X COMPLETING THE HISTORY OF THE MADRIGAL (PERU) VENTURE, 1966-1983

Chall: Can we now turn to your venture at Madrigal?

Swent: We can't finish it but we can get started.

Background: Reason for Developing the Mine

Swent: Back in the 1960s John Gustafson had Homestake enter an exploration syndicate with several companies to do exploration in Bolivia and Peru, in the Andes. It was called--I forget, East Andes Exploration Syndicate, or something like this. It was run by a man named George Tower. He was the active participant and he had a small stake in it and did the exploration work, went scouting around the area. Henry Colen came to work for Homestake at the same time I came up from New Mexico in 1966. Henry Colen had previously worked for San Luis Mining Company, I had known him down there, and we had stayed in touch over the years. He was given charge of this foreign exploration work.

I may have gone over this background in an earlier session, but I'll repeat it so that we'll now have the entire story. In 1966, they thought that they had developed or found a property in Peru near a little town called Madrigal, way up in the Andes, that would be a good base metal producer. Had a good vein on it, had had some superficial workings on it, but it had never been pushed very far. So Tower did some additional work and it looked as though it was a good mining venture.

So then the syndicate tried to negotiate among themselves to decide who was going to operate it and how, and wound up with Homestake being designated the operator. They formed a partnership to do this with Homestake as general partner and the other companies as limited partners. It was a very, very complex

agreement because of the different requirements. It was quite a mix. Some people were individuals and some were corporations, some of them were mining companies, and they were knowledgeable in the business.

Chall: More difficult than you had at Grants with the partnerships?

Swent: It was a much more complicated agreement, although actually the relations with the partners were not as difficult as they were in Grants.

At any rate, then they sent Ted Rizzi, who had been the Homestake geologist for many, many years and had been our chief geologist in Grants and then moved out to Missouri to work on the Missouri lead project--they sent him down there to verify the reserves. They sent an engineer named Paul Price down to do some estimating on costs of developing the mine and putting it into production.

Chall: Did they do all of this after the agreement was made?

Swent: Well, it was simultaneous in a way. All these were going on at the same time. I wasn't involved at that point, I'm just giving this as background. So then they decided to go ahead and develop the project. It was going to cost something on the order of $7 to $8 million which Homestake was going to invest and had the right to recover under the partnership agreement.

Before Homestake got very much money invested in it--they did get some, a million dollars or so--the [Lyndon B.] Johnson administration in the United States passed an act restricting the export of capital. The country was having some financial troubles and capital troubles so they prohibited the export of capital. This put Homestake in a real tough position. They had taken on the obligation of financing the property and they had the money but they couldn't send it out of the country.

By accident one day I went to a noontime talk at the Mark Hopkins Hotel and sat alongside a fellow that I had never met before but we introduced ourselves. He was Japanese and we got to talking about what businesses we were in. He was with the Marubeni Trading Company of Japan and he was head of their San Francisco office. It turned out that the office was in the same building that Homestake was in. We were on the ninth floor and they were on the thirty-first. Being a trading company they had all kinds of interests, so in a few days he came down to see me with two or three people and wanted to know in what sort of things they could do business with Homestake.

I introduced them to Henry Colen and they got to talking and eventually--this took months to work out, but eventually they worked out an arrangement for Marubeni to lend our Peruvian subsidiary the remaining capital that they needed to develop the property and build the mill and put it into production. The funds were to be repaid by selling concentrates to another Japanese company, Toho Zinc Company on a five-year concentrate purchase contract. Then from each shipment they would deduct a specified percentage of money and this would be paid by Toho Zinc direct to Marubeni and then the rest of the money would be transmitted to Homestake.

Swent Takes Charge of Development and Operations, 1970

Swent: Well, this worked fine and things started. Construction, I guess, really got going in 1970. A little bit before September of '70 Paul Henshaw asked me to take charge of the Madrigal development and operations. Henry Colen was regarded as being an exploration person and he ought to stay in exploration. This was now in a new phase and I would take that over. Henry had taken down to Peru a San Francisco employee named Arthur Beynon to be the manager. Art was a very experienced operator in Latin America and the third world. He had had lots of experience in the Philippines and in Colombia, Bolivia, and Peru and was a very capable, conscientious operator. He was already there as manager.

Visiting the Mine and the Surrounding Andean Countryside

Swent: In September of 1970 I went down for the first time to the project to get acquainted with it. The mine itself is located approximately two hundred kilometers north of the city of Arequipa. It's in the high Andes, just above and on the eastern side of the Colca River. The Colca River has a massive canyon just below where Madrigal was. It's running north at that point, and then it makes a big turn and runs west and out to the Pacific coast. When it gets down to the Pacific coast the river is called the Majes River.

At any rate, the way to get to Madrigal was to fly to Arequipa from Lima. The only way you could get into Peru by flying is into Lima--they had no other international airport--and then fly on the local airlines to Arequipa and then drive up to Madrigal. That was a long tough drive. It was all dirt road. Arequipa is at an elevation of about 8,000 feet. We had to go over 16,000 feet to

get to Madrigal and to the Colca River canyon. Then we descended from 16,000 feet down to a town that was in the river bottom called Chivay, which was at about 12,000 feet. It was a very dramatic descent there.

The whole country was just beautiful. They were still farming around Chivay for a type of corn and a crop called quinoa, which is millet actually, and some things that looked like lima beans, very large lima beans. They do grow some small potatoes. They still had much of the old Inca terracing there, just acres and acres and acres of these very small terraces all kept up by little rock walls, each terrace a little bit below the other. They diverted water from the Colca River into a ditch system that came in at the top of all these terraces. Then the water was sent down by a system of ditches through all of these terraces. Marvelous, marvelous work. And you could see abandoned terraces all over the place. They probably hadn't been worked for two or three hundred years.

Then, after descending to Chivay, we had to cross the river. There was a very narrow gorge there that the river went through, and there was a bridge across it, a small bridge.

Chall: Did you drive across?

Swent: You could drive across, yes. Then there was a road down. There were four villages on the east side of the river. We went down through these four villages. I used to know the names of them, but I can't resurrect them. Cabanaconde and Yanqui, Lari, and Madrigal. There was a road of sorts down there, and then we built our own road on from Madrigal to the mine site which was another ten or fifteen kilometers.

Art had already begun developing the camp site there and the mill location. They had a small staff house. I think it just had ten rooms in it. At the time there was very limited housing so he allowed no families up there; it was just the men themselves. The camp site was at an elevation of around--as we went down the river, of course, we lost elevation--11,000 feet.

Chall: Was it Peruvian staffed? Are we talking about miners or what now?

Swent: Art's philosophy, and I agreed with it, was to try to do as much as we could with Peruvians and to not have much of a foreign staff. Art, of course, is an American but he had operated in Latin America and understood their philosophies. We did send down an engineer named Harold Sliper, who had been in Lead and was in San Francisco and had been in the early Port Costa design and construction. Then when that finished he was looking for something else to do, so we

sent him down there to be in charge of the construction of the mill. We also sent, on a part-time basis, a fellow named Ralph Tibble, who was an industrial engineer. He was to do the scheduling and work out the critical path and develop a scheduling chart so that they could plan the construction of the mill and get everything done on time.

Planning for the Mine and Mill

Swent: The mill was to be located at an elevation of maybe 11,500 feet. Then the mine was up above that. The top level of the mine was called the two level. The one level was just some old surface workings that we weren't going to use.

Chall: You were going deeper?

Swent: We were going to start from the two level and we would mine up from the two level, mine things out up above--and that was about 14,000 feet, the two level--and then work down to the seven level. They had driven a long extraction tunnel in on the seven level. Then they would put in a little crushing station and then an aerial tramway--very rugged country, very rugged--down to the mill site.

There was danger. All of this was up sort of a side canyon to the Colca River, and the mill was located down where the canyon widened out. There was danger that it could be flooded if they had a sudden flood down this canyon. So we had to build a big retaining wall to confine the flow of water to one side of the canyon and build the mill on the other side.

Chall: How deep were the miners going? How deep down into the earth?

Swent: Well, these were approximately 150-foot level intervals. We ran from the two level to the seven level. It wasn't really very deep. We weren't going down, we were going in, into the mountainside, but we went in a good kilometer or two. Eventually we went through the mountain and came out into the next canyon. We connected all the way through, the vein continued all the way. I forget what the total length was, but it was approximately two kilometers, I think, through the mountain.

Of course, our source of labor was strictly local Indian labor, mostly from the little town of Madrigal. At first we had no housing at all for people. But then we weren't using very many, either, while the construction was going on. By the time I got there in September of 1970 about all that was being done was some

foundation work. But they were getting ready. They had ordered lots of equipment. Most of the equipment orders had been placed and for raw materials like construction steel.

Chall: That's all heavy stuff to be going down those roads.

Swent: Yes, well, we had to improve the road all the way back to the Sumbay junction. When you left Arequipa you climbed right up, zig-zagged right up a mountainside, it seemed like forever, until you got to the Altiplano, which was at about 12,000-13,000 feet. We climbed up this mountainside and then got onto the Altiplano. Then on the Altiplano it was fairly flat and the road was very good. It went on across eventually to Puno on Lake Titicaca. But near a town called Sumbay the road to Chivay forked off to the north. From there on the road wasn't as good. We had to improve it from that point on to Chivay and then from Chivay on down through the four villages.

Chall: Across that bridge?

Swent: Eventually we had to replace the bridge. That was a wooden bridge and for the heavy equipment that we had to bring in we put in a steel bridge, put two great big tremendous I-beams across it.

The Risks in Mining Ventures

Chall: Really, I never cease to wonder when I've been working with you at the amount of work and the kinds of preparation that have to go into setting up a mine. And what that must mean in terms of taking risks by the company. You must expect that what you're planning is going to be profitable, because all that you've just explained here is very, very costly.

Swent: Yes, it is very costly, and the risks are several. One is, of course, just the risk that the mineral is there or not there.

Chall: Yes, exactly, that's the most important risk.

Swent: Then, when you go into a different country you run political risks, too. So there are both of those kinds. Homestake is very conservative and usually they don't go into a venture unless the ore reserves have been very well outlined and it's pretty certain that you'll get an economic payback on the investment. But certainly the risk is there.

Chall: Well, Lead is one place, Grants would be another, but the Andes! [chuckles]

Swent: That added a number of risks. We had the weather risks there. We frequently had destruction of the road or parts of the road with heavy rains.

Chall: Earthquakes?

Swent: No earthquakes, we weren't affected by the earthquakes there. The earthquakes that hit Peru--and they had a very serious one in 1970 --were way up north. That did affect some of our exploration work. We had an exploration camp up in the earthquake area, and that had to be abandoned completely for several years before we could even get back into it. But at any rate, I didn't have anything to do with that. Eventually I went up there after several years.

But the Madrigal project really was very fascinating. It had lots of resemblances to Tayoltita in the fact that it was in a very rugged location, the type of labor that we had available, and the types of mining methods, of course. And the fact that we were at the end of a long, long supply line and had the aerial tramway, that was another similarity. Very, very similar. It was the same type of mine, a vein mine, but was not a precious metal mine. It was base metals that we were recovering, copper, lead, and zinc with a small content of silver in the lead concentrate.

But anyway, to get back to the improvements here. We had to improve all those roads. Then the next task after we got started building the mill was to start building housing because we had to have housing under the Peruvian contract. Oh, I should go back a ways. One of the things that had been negotiated before I got into it was a special contract with the Peruvian Ministry of Mines and Energy.

Relationships with the Peruvian Government

Swent: In 1967 when we first went into the venture, Peru had an electoral system and a president, Terry Belaunde. But there was lots of unrest there, particularly over the Talara oil fields, which were owned by one of the major oil companies. These had initially been given by grant by the King of Spain, not as oil properties but as property land to one of his faithful followers, to be free of taxes. Over the years, even when it got to be an independent country, Peru still observed this freedom from taxes. But then they discovered oil on this property and it became an oil-producing area. And the oil companies claimed that they didn't have to pay any taxes. This got to be a big bone of contention politically

in the country and eventually it was a big political cause celebre.

One of the things it led to in 1968 was the takeover by the military. The military took over the government and ousted President Belaunde. He was exiled and went to Harvard and started teaching. So we were under a military government then. This was a completely new philosophy. In order to develop the property we had to have a contract with the government. It was a fairly complex contract. They passed a law--and I have a certain amount of sympathy with their point of view. This new law required companies that were holding mining properties to either file an annual exploration plan and spend money on the claims or else put them into production or give them up.

Peru was a very productive mining country; they had lots of mines there and lots of mining activity. Many of the major mining companies of the world had holdings there. But what was happening, what the Peruvians claimed was happening and I think is really true as far as the facts go, was that these companies would come in and develop fairly significant reserves. But they were also mining in other countries. This created the problem.

Particularly when we come into the copper field and the base metals field, the mining of base metals is very sensitive to prices. And many mines are shut down. The prices fluctuate, are fairly volatile. The world supplies vary from time to time, and as the supplies dwindle the prices go up and vice versa. When the prices go up a lot of people get into the business, and then the prices go down and the properties have to be shut down.

Well, the major mining companies, particularly in the copper end of it, that had mines or properties in different countries, would decide which was the best property and which one to put into production and which ones to sit on. A number of these that were being sat on were in Peru. And the Peruvians wanted them into production and wanted the jobs. They didn't care about the jobs in Chile, that sort of thing. So they were putting the pressure on the companies to either give these claims up and let somebody else get at them or to do further exploration or to put them into production.

Chall: Pay taxes on them somehow?

Swent: Well, they wanted jobs is really what they wanted, and production, and they wanted the foreign exchange. They needed the foreign exchange.

One of the things that the military government did was to expropriate lots of private land holdings and try a land reform

program. It was a dismal failure, terrible failure. Most of this was sugar cane on the coast, and corn, and wheat. But Peru turned from a corn-exporting country to a corn-importing country as a result of the decline in production from the land reform program. There was no incentive for individuals to really produce from these small pieces of land.

Finally they turned to making cooperatives out of them, forming government cooperatives, taking these fellows that owned a little piece of land and making them into cooperatives so that at least they had some size. The cooperative was then financed by the government. The problem with the little owners was they had no money, no capital to buy seed with and to make an investment for a crop and then wait until the crop grew. They didn't have that kind of money. They were supposed to be able to borrow money from government banks but they didn't understand the finances and all this sort of thing. It just did not work.

Chall: They were serfs on the land actually.

Swent: And they didn't have the education or the sophistication, nor the incentives. They would grow enough to live on personally but not enough to sell, and that sort of thing. So anyway their production fell off tremendously and as a result where they'd been an exporting country they were now an importing country. They ran into a terrible jam on reserves of foreign currencies.

This had an effect on Madrigal because they then required that the money that we were going to get from the sales of concentrates be sent back to Peru. And we had a terrible time getting the deduction to pay off the Marubeni debt authorized. They finally did authorize that, but only that we go through the Bank of Peru, the central bank branch in Tokyo. The money had to go there and then Marubeni could take it out. But by then it was so-called Peruvian money and they could take out the payment to Marubeni and then it could come back. The rest of it had to go back physically to Peru.

Homestake had some capital to recover. This posed a problem for Homestake as to how to recover it, because we had been second in line for the money. Marubeni came first and our money was second. We had a little trouble getting our money out of there. We could only recover it from profits. Profits were allowed to be exported but you had to get a permit for each transmittal of profits out of the country and they were long in coming and hard to get, and sometimes you didn't get it for all your profits. They only gave you as much as they had foreign currency for.

The Homestake Contract with the Government

Swent: So we entered into this contract with Peru which went into all of these things. The contract also provided that we would not be subject to any new social taxes. They had a certain structure of social taxes, like social security and this sort of thing. They provided that we not be subject to those. But after a while the military government--and it was a pretty leftist government--came out with what they called a comunidad plan for industry. This was a community plan where each business had to form what they called a "community" of their workers and each year give them a percentage. I've forgotten what the percentage was. It was a percentage interest in the business, and you had to transfer this interest over to the community for that business. They set one up for the mines; the mines had to participate in one of these. Each mining venture had to have its own comunidad.

I went back down to Peru on this and argued that our contract called for no new social taxes and that this was a social tax. I argued it before the director of mines, who was David Ballon. He was under the minister of Mines and Energy. He headed up all the mining part of the government. And he took it under consideration, but after a few months they came back. It was pretty obvious that politically they couldn't do anything else. They had to have this mining community, once it had been announced. Politically they couldn't say, well, Madrigal is exempt from it because of their contract.

We had another thing working against us, and that is that the Madrigal venture was a relatively small one in mining. We had the first of such contracts with this military government. The second contract had been signed by Southern Peru Copper Company,[1] which was a consortium of major producers, AS&R and I think Anaconda, Phelps Dodge, and others who owned a tremendously large property called Toquepala, south of Arequipa, down between Arequipa and the Chilean border. Toquepala got the second such contract. And it was a huge undertaking; it made ours seem minuscule.

So everything that we did was setting a precedent for the Toquepala contract. The government was very wary of any concessions that they made to us, because even though it might not have meant much money to the government in the case of Madrigal, it might mean tremendous repercussions on Toquepala. So this was sort of a millstone around our neck all the time.

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[1]For more on Southern Peru Copper Company, see Simon David Strauss, Market Analyst for Non-ferrous Metals and Non-metallic Minerals, Journalist, Mining Corporation Executive, 1927-1995, Regional Oral History Office, University of California, Berkeley, 1995.

Finally Ballon told us that no, this was not a social tax and therefore was not exempt from the contract. That was their decision, and we didn't try to fight it. Legally you could have probably tried going to court with it, but in our experience in Latin America you don't really get very far with that. So we had to just let it go.

There were some favorable things in the way the regulations worked. One was that the amount of the interest that was transferred was based on the profits. It was a percentage of the profits, I think 10 percent of the profits, that were to be dedicated to buying stock or shares or interest in the venture and turned over to the community. The community was owned by all the workers. Then they would get any cash that the community assembled. The payment had to be part in cash and part in interest so that there was cash available.

But you were allowed to offset against profits any new investment that you had made during the year. So for several years we were building housing, particularly, and expending great amounts of money on housing. For those years the amount that was due to the community was rather small and didn't bother us too much. During the years when we had the high income, high prices, really the effect of the community was very small.

The second trip that I made down to Peru was a few months later. I made a practice of going down every three months if I could and spending maybe a couple of weeks each time. The second trip, we had received a big shipment of structural steel from Japan. Art had put out all the structural steel requirements for bid and the Japanese had been the low bidders, so he had purchased it from Japan and it had arrived in Arequipa.

Four Trusted and Experienced South American Staff Members

Swent: Art had brought to the operation four oldtimers that had worked with him before in Peru and in Bolivia. Very capable fellows and very loyal. One of those was a fellow named Enrique Ascorra, who was a mechanic of all shapes, very good. Art had turned over to Ascorra the yard in Arequipa where they received all this material. It was basically just great big sheets of plate and great big lengths of different types of channels and I-beams and this sort of thing. Ascorra was to cut them up into the proper shapes and then ship them out to Madrigal.

He had all the plans of what was needed. It was easier to do the cutting in Arequipa than it was to take the material all the way out to Madrigal and do the cutting there. You would have had

to ship all the oxygen, acetylene and everything else out to Madrigal so you might as well save that shipping cost.

[chuckles] But Ascorra was just complaining bitterly, pointing out to us that all this Japanese stuff--this was still a little bit early in the Japanese steelmaking business--wasn't square. These steel plates that were supposed to be rectangular didn't have right angle corners. They'd be slightly off, and all the I-beams and channels and things came with the ends at different angles. So he had to take everything and trim it off and get the edges correct to begin with, and then do his layout from there. This was really quite a little extra job. If we had known what that cost was they might not have been the low bidder! [laughter]

Chall: That's right!

Swent: But he managed to get over all of that and ship the stuff on out to Madrigal. He was in charge of getting the bridge at Chivay redone and in charge of all the heavy trucking. When we brought in such things as the ball mills and things like this on these great big trucks, why, he went with them. He was just a real good jack-of-all-trades.

Another one of Art's trusted employees was Donaldo Rodriguez, whom he made the superintendent at the plant. Donaldo was primarily a milling person, didn't have much mining experience, but he was a very good administrator, very even-tempered. He didn't get very excited or anything and did a very good job of administration.

Another one was named Jose Andujar. Art used Andujar to set up the whole administrative system of the company. In fact, he sent him up to San Francisco for several months to study English. We helped him go through his schooling and things in San Francisco. He stayed over there.

The fourth one was named Victor Mejia. Art gave him the job of running the office in Arequipa, which was really a way station. Things all had to be funnelled through Arequipa to go up to the mine. Eventually we had a radio set-up at the mine, at Arequipa, and in Lima. We had an office at Lima also. In Peru you don't do business without having an office in Lima, there's so much government business involved.

Those four men were really the backbone of the operation. One other one who was not an oldtimer there but was very, very helpful was named Ralph Schiller. He was Rhodesian by birth and had come to Peru. He was an accountant and had worked for, I think, Price Waterhouse as an auditor. He spoke Spanish excellently, so Art put

him in charge of doing all the accounting for Homestake. Frank Corbin, who was the Homestake chief accounting officer at the time, went down and went over the Homestake systems with him, and Ralph did very well. Eventually after a number of years we moved Ralph up to San Francisco, and he worked here until he retired a few years ago. He's living up in Auburn, California, now.

Well, I wonder, where are we here?

Chall: Oh well, we're almost finished. We probably have another ten minutes or so. Do you want to go on or shall we quit?

Swent: I think we might as well quit at this point.

Developing the Mine and Mill

[Date of Interview: July 22, 1988] ##

Swent: To get back to Madrigal itself, the mine had a strong base-metal mineralization in a very persistent quartz vein, cutting through some of the upper Andean volcanic formations. It was called the Santa Rosa vein. The ore minerals were galena, sphalerite, chalcopyrite, argentite, and gold. Argentite and gold were in small quantities but sufficient that we got paid for them. Galena is lead sulfide, sphalerite is zinc sulfide. chalcopyrite is a complex copper sulfide, argentite is silver sulfide, and what little gold there was was just native gold.

The development of the mine was by several adits. Eventually we had adits on the two, three, four, five, and seven levels. The six level was developed internally without coming out to the surface. We built an incline hoistway on the surface that went by each of these adit openings where they came to surface so that we could hoist materials up to the adit and then they could be taken into the mine. Basically each level was driven along the vein but the vein was wider than the normal drift that we drove.

We drove small drifts, maybe eight feet wide by six or seven feet high, maybe eight feet high. So every fifty meters we would drive cross cuts across the vein to expose it so we could sample it. The level interval was fifty meters, which was approximately 150 feet, a little over 150 feet. Between levels there was a system of vertical openings called ore passes or raises, all the way from the two to the seven level.

Haulage Systems

Chall: This is pretty standard, isn't it?

Swent: Yes. The main haulage level was the seven level. That came out to surface on a big patio where we had the compressor station and the place to dump the ore and a little office. We also had a mine office up at the two level. And the road that came up from the mill came in, had one branch that went to the seven level and then the main road continued on up the hillside to the two level. We built a large residential camp for workers up near the two level so that they wouldn't have to commute too far. That was close to, as I say, 13,500-14,000 feet. But it eventually became quite a large little settlement.

Our haulage was battery locomotives and one-ton rocker dump cars. We didn't have any old workings to contend with the way we did in Mexico, in Tayoltita. This was completely virgin territory, and except for a small amount of workings between the one and two levels there were no other workings on the vein. It had never been worked extensively before. So we didn't have that big unknown always facing us of what somebody else might have done a hundred or two hundred years before.

And of course we had a very strong ventilation system to control silica dust. It was a siliceous vein. The stoping for removal of ore, we had a few shrinkage stopes where you just break ore down and keep vertically drilling up the vein and blasting it down. You would draw some of it to make room to stand on top of the broken ore and then drill up and work again. But most of the ore was cut and fill, where you mine out a cut of ore, say six or eight foot cut of ore vertically, and then you replace it with waste material. Then you work on top of the waste material to drill for the next cut. This is usually slower than shrinkage stoping because of the time and effort that it takes to do the filling.

Chall: Is there a reason for doing one instead of the other?

Swent: Yes. Of course, the filling is usually done to support the walls that would otherwise cave. The walls on the Santa Rosa vein weren't very good. The surrounding rock was fairly weak and not very competent, and you couldn't leave large areas unsupported. Shrinkage stoping does provide support as long as you have broken ore in the stope, but once you finish breaking the ore and you start pulling it out it leaves the stope increasingly open. Eventually if the walls are poor you get a lot of caving, which

introduces material with no value into the ore. That's what we call dilution; it dilutes your grade of ore.

The fill was supplied to the mine from up above the two level. We had a raise that went to surface there and we were able to bulldoze. There's a lot of soft material on the surface there and we would just bulldoze it into this raise and then pull it out of chutes in mine cars on the two level and transfer it around to waste passes down to whatever level it was needed and then dump it into the tramway by car and dump it into a stope that was being filled.

Where we hauled the ore out to surface on the seven level in the early stages--since the aerial tramway was not finished by the time the mill was ready to go into operation--we arranged to truck the ore down to the mill site, to the mill ore bins. So the ore was dumped down onto a shelf below the track level. Then we had front end loaders that would load the ore into the trucks from there. The road down to the mill was quite a zig-zag road, but--

Chall: Quite hazardous, a heavy truck full of ore.

Swent: Yes, well, we didn't use the big open-pit-type of trucks of a hundred tons and that sort of thing. We were using smaller-tonnage trucks of maybe five to six tons apiece, because we didn't have a road big enough and wide enough for those heavy, large trucks. And it was only an interim arrangement at best. The investment in the big trucks wouldn't have paid off.

The Tramway

Swent: Once the tramway was installed, and this was about a year after we began operation, they had a small crusher at the dump. It was just a jaw crusher to break any large pieces. Very little of it had to be broken because, at first anyway, we were mining way up on the two and three levels and dumping the ore down through these internal ore passes. And this broke it up pretty well so that it was fairly fine. But the tramway buckets do load better if you have a limit on the largest pieces. So by putting it through a jaw crusher we were able to at least be sure that there were no big pieces that would fall out of an ore bucket.

The tramway itself, once installed, was a continuously operating one. It had an automatic loading of the buckets at the upper terminal and it essentially ran by gravity with the loaded buckets all going downhill. They generated the power to run the

tramway. There were two cables. One was what we called a track cable. The track cable was a cable that the wheels on the bucket frame ran. Then there was a traction cable that just was like a ski lift. The traction cable was a moving cable that was attached to each bucket, and this cable moved and pulled the buckets along.

The buckets had handles on them where they could be detached from the traction cable. So when they arrived down at the lower terminal they were detached and coasted off. A man would dump them and then push it back into place where it could be picked up by the cable again. Then at the upper terminal they were also detached when they came in. There was a man who operated the loader. He would load buckets ahead of time and then shove them onto the line at the proper intervals.

Chall: How many would you have going?

Swent: I think they had fifty-two buckets on the line. I may be off three or four there, but I think fifty-two is the figure of the maximum loading on the line.

The Mill

Swent: The initial mill capacity as originally designed was for 500 metric tons of ore a day. That would be roughly 550 short tons per day. And it consisted of conventional crushing and grinding followed by a conventional flotation circuit. The mill design flow sheet was done by a metallurgist in Lima called Carlos Plenge, an excellent metallurgist. He designed the flow sheet after doing a lot of test work on samples of the ore.

Then the detailed design was done by a staff that Art Beynon put together of Peruvian draftsmen. Art supervised it very, very closely. There had been lots of mining done in Peru by American companies, so there were lots of people available who had worked for American companies and knew mining equipment and sources of mining equipment and people who were trained to do the drafting work and that sort of thing. So it was very well done. They do beautiful work; Latin Americans all do marvelous drafting. They're very meticulous. Art approved every drawing himself. This was a big job but he was very, very interested in it and he just wanted to show that the Peruvians could design and build a mill.

I think I mentioned earlier that we sent Harold Sliper down. Not for design--he could do design but he was there to supervise the construction work up at the mine site. We'd spend the weekdays

at Madrigal at the mine site along with a few other people, engineers and geologists. Then they would commute back to Arequipa and spend the weekends in Arequipa.

Chall: That was a long trip. [chuckles]

Swent: Yes, it was a several-hour trip.

Chall: Arduous.

Swent: And arduous. But Harold just loved it down there. His wife came down and she stayed at the hotel in Arequipa, the Hotel de Turistas which is the hotel that we liked to use. That's an old, old hotel run by the Peruvian government for tourist purposes and had some of the old Peruvian atmosphere. There were some newer hotels and more modern facilities, but they have much smaller rooms and much less atmosphere and not as good food. She just loved it, too. She did not go out to Madrigal. I guess she went out maybe for a day's trip or something, but she didn't live there.

The flotation scheme in the mill was such as to separate the galena as a separate concentrate and the chalcopyrite and the sphalerite as separate concentrates. Initially the galena and chalcopyrite floated together, floated off, and then they were put through another circuit to where the lead was depressed and the copper floated off of the lead. Then the tailings from the first section went to the zinc flotation where the zinc was floated. Then at the end we had three different products, the galena concentrate, the sphalerite concentrate, and chalcopyrite concentrate. Each one was filtered and dropped from the filters down through an opening onto a loading platform, a separate one for each concentrate--we kept them separate from there on--and had a scraper there. We would back a truck underneath the floor and then with a scraper just scrape the concentrate into a hole which fed into the truck.

The concentrates were shipped then by truck down to Sumbay to the railroad terminal there. The trucks were weighed out. We had a weighing station at the mine site and they were weighed out, and then they were weighed in again at the railhead at Sumbay. The trucks had to be covered so that we wouldn't have wind losses. They were covered with tarpaulins.

Chall: What was the general point of weighing them both places?

Swent: Just to check that there was no stealing. Concentrates could be easily stolen and could be sold by somebody else if they wanted to go into the organized theft business.

Chall: Was there much of that?

Swent: No. We didn't really detect any, but that was a precaution.

On Railcars to Ships to Japan ##

Swent: We had to wait to ship until a railroad car was available. The railroad cars we used were sort of flat cars with sides that could be pinned up and then could be dropped for the unloading. We would load these cars with a little front end loader. Then they had to be covered also. We had some losses on the railroad. The concentrates were somewhat moist and with the motion on the railroad cars they would puddle, and the moisture would rise to the top and then begin to run out through the cracks between the sides. There wasn't too much you could do about this. We tried to cover those with burlap or something but there was always some loss.

Then the railroad cars were taken down to Arequipa. The normal daily train service was between Puno and Arequipa. At Arequipa there was another train line that ran down to the port of Matarani on the Pacific coast, about eighty kilometers from Arequipa. So the cars continued on down to Matarani. The port is called Mollendo, but the place where the concentrates were dumped was called Matarani. I never knew where one began and the other ended.

They were unloaded by dropping the sides of the cars and then using a small bulldozer type piece of equipment to just shove the concentrates off onto a concrete slab on the other side of the car. The bulldozer would operate from one side and the concentrates would fall off the other.

Then when we would accumulate enough for a shipload and the ship was available they would be picked up by a front end loader, put onto a conveyer belt that was part of the port facilities, and weighed--there was a little weighing cell on the conveyer belt and the sampling facility. Then they would be transferred to a second conveyer that took them downhill to a third conveyer that was a movable type that would move around to different holds in the ship.

Chall: These were Japanese ships?

Swent: The ores were shipped to Japan, yes, but they weren't necessarily Japanese ships. They were all sorts of ships that came in. They were small ships and our shipments weren't very large. There was one problem with one shipment where the ship sprang a leak and the

leak got into the hold where the copper concentrates were. They were apparently pretty well--not destroyed, you can't destroy the stuff, but a lot of it was lost. But the insurance covered that.

Chall: Were you insured by Lloyd's of London?

Swent: I'm not sure who carried the insurance. The insurance was arranged by Toho Zinc. The arrangement was that once the cargo was on board the ship and we'd made out the invoice, that it was Toho Zinc's property. They insured it and paid us 80 percent of the value of the invoice immediately, usually within twenty-four or forty-eight hours. Then the other 20 percent took months to get because we had to wait until the concentrates got to Japan, were unloaded, sampled, weighed and analyzed. They had to analyze for a lot more elements than just copper, lead, and zinc. They analyzed them for impurities as well as for minor elements like the silver and gold, cadmium. We got paid for those. But if you had, for instance, too much copper in the zinc concentrate--copper was a very difficult thing for them to handle in the zinc smelter--you were penalized for that.

Anyway, we had to wait and it usually took about three months to get the final payment. So we used to pre-charge the invoice on which they paid us. Then we got all of these analyses in and would go through what we called the umpire proceedings where we analyzed them, and if we didn't agree, the sample was sent to a third party to be analyzed and then the third party's analysis would govern. After we went through all of this then we prepared a final invoice for the balance of the shipment. So what we did to try to improve our cash flow was to estimate on the high side when we shipped so that the hold-up was actually less than 20 percent.

Chall: I see. But you didn't try to change your flow method to rule out the impurities?

Swent: Oh yes, we had to work on them at the mill, particularly to keeping the copper out of the zinc.

Chall: I see. So you did--because otherwise it would cut down on your 20 percent, wouldn't it?

Swent: Well, it would cut down on the profitabilities. It would apply to the entire shipment. The final invoice was really an invoice for the entire shipment, less the amount that had been pre-paid.

Establishing the Infrastructure

Swent: To get back to the matter of the process and building the plant and everything, we had a tremendous amount of infrastructure to build. It made Grants seem like kid's play. We had to provide housing for everybody in the long run; we didn't provide it all at first.

Chall: That's for families of the men?

Warehouses and Power

Swent: Yes. And we had to be self-sufficient in the way of machine shops. We had a carpenter's shop and an electrical shop, a big warehouse. The warehouse inventory was tremendous because of the length of time that it took to get anything--particularly imported things. Peruvian-made things weren't too bad, but any imported machinery or spare parts just took ages to get. In the first place you had to get the order approved by the Peruvian government because of the money that had to go out of the country. So they kept close track of any orders placed outside the country. On some items you had to have a year's lead time. So we carried a big, big warehouse. We built our own diesel power plant, generated our own diesel electric power, and then had to have a distribution system up to the mill and up to the mines and down to the housing.

We had to have some outside help for this. I did send down Roger Madsen and Elmer Shields. Roger was a mechanical engineer who had worked for me in Grants and Shields was an electrical engineer who had worked for me in Grants. So both of them went down and helped on some of the installations there.

Forestation Program

Swent: We also undertook a little forestation program. The countryside is absolutely bleak there, above timberline; there were no trees, no local trees at all. So Art had me get in touch with places in the Bay Area, and I finally settled on one here in Castro Valley. He carried on correspondence with that nursery, and finally bought some seeds.

Chall: What could you do at timberline that wasn't natural?

Swent: Well, we would irrigate. There was water so we could irrigate them. Let's see. [looks through papers] Yes, Art bought junipers and bristlecone pine trees. He didn't plant the seeds in the outside, he planted those in little cans in the interior until they'd become seedlings, and then we transplanted them.

Chall: What did you do this for? Was it the environment, making things pleasanter?

Swent: A little bit of environment and a little bit, looking down the long-term, to have some source of timber. In addition to the pines we planted a tremendous number of eucalyptus. Eucalyptus were already growing in Peru so we didn't have to send outside the country for seeds. They grow pretty fast. The idea was that if this became a long-lived mine that you'd eventually have a built-in timber source with the forest there.

Chall: Where did you get your timber otherwise? How far did you have to go for it?

Swent: Well, I was never sure where it came from. We would purchase it down in Arequipa and have it shipped up. There wasn't really much in the way of local timber.

Security

Swent: We had to build up a security force of people. Eventually the camp was guarded by a fence and a gate system. The fence didn't have to go very far because of the roughness of the terrain. It went to the steep parts and that was it. Didn't surround the entire camp by any means. That would have been a tremendous job.

Chall: That was security against people who might--

Swent: Well, it was basically across the main road so that they could control who entered and who didn't. We didn't try to control people very much, all the people. There were hundreds of wives and families, and there was no attempt to control them. We did try to control vehicles. Of course security for purposes of theft and fire prevention and that sort of thing.

Schools, Hospitals, Housing

Swent: We had to build schools, hire teachers. The teachers had to be approved, those who were certified by the Peruvian government, then we could hire them and negotiate their salaries. It was hard to get teachers to come out and stay there, it was so isolated. So we had to pay probably higher than normal teacher's salaries to get them. Had to build a hospital and had to have a doctor and nurses on the staff. It was a well-done job. Art did a good job on designing that. It was a far cry from what we had in Tayoltita.

Had to build hotels. We built three levels of hotels. We built a hotel for the top staff, which was of course more luxurious; then we built an intermediate hotel for the medium staff, and then for a sort of a transient staff of hourly workers until they got a place to live, a home or something.

Chall: How many hundreds of people were you building homes for?

Swent: Well, we wound up with a maximum of about eight hundred employees, but you multiply that by about three or four people in each family and you have several thousand--three thousand to four thousand people maybe. At first we couldn't possibly house that many. A lot of them still lived in the little town of Madrigal, which was about twelve kilometers away, and commuted. And at the hotels, we had to have cooks and waiters and maids.

The Water System and the Tailings

Swent: We had to devise our own water system. Now, there was a water supply, fortunately. The Cahuira--I guess you would call it a river but it was a stream anyway--was a tributary to the Colca River. It ran right down by the mill and we put a water intake on it up by the mill, good cold water that came right off the mountains. The mountains around us rose up to 15,000 or 16,000 feet and had year-round snow on them so the water was cold all the time.

Chall: Where did you dump the ends of the mill process?

Swent: The tailings?

Chall: Well, the tailings as well as the water.

Swent: Well, there was basically no discharge other than the tailings. The water that went down with the tailings was allowed to settle, or the tailings would settle and the water would float and then form a pond. Then we would pump that back up to the mill and re-use it. We did have to discharge some water occasionally, just to keep from building up too much in the way of contaminants, but there was no problem with it. They got quickly diluted in the stream.

Chall: You didn't put that down the Cahuira?

Swent: Yes, we did, down the lower Cahuira, that is, well below town or below our camp. We had to have a sanitation system for the entire camp. We had drainage fields and septic tanks all over the place. For the tailings disposal we had to buy a number of the terraced land. The only natural place for the disposal was a depression at the base of the terraces--the individual holdings. So we bought a number of those. It took a long time to buy them because there were so many of them, we had to buy very small plots, just fractions of an acre each.

Recreation

Swent: Then we built a clubhouse for staff people where they could go and read magazines and play juke boxes and dance or have light drinks and be sociable, play cards, have parties.

Chall: This was for all staff and their families?

Swent: Yes. Then we built a couple of theaters, one up at the two level town and then one at the lower town.

Chall: Did you bring in Spanish movies? American?

Swent: Well, a lot of them were dubbed in Spanish. If they weren't dubbed they had Spanish titles.

Then we set up a bus service. We bought a couple of school buses and would run those up and down the road between the main camp and the number two level camp.

Chall: How far apart were they?

Swent: Oh, by road it was probably seven or eight kilometers. We ran it on a sort of a schedule, ran several trips a day, particularly at shift times when the men change shift.

During the construction period we didn't have the hotels. So they built a very simple ten-room building, just five rooms on each side of a hallway and a window in each room and a doorway into the hallway in each room. Then they had a community bathroom and in an adjacent building a community shower that was fairly simple. In order to keep the number down there he would allow no staff wives. All the employees were men and no wives were allowed. This didn't hold true for the hourly labor. You couldn't control them. But then they were living in the town of Madrigal and that sort of thing. We didn't even have housing for them at first.

Chall: Eventually were the maids for the hotels--were they wives or daughters of the--

Swent: Yes, and actually they used men for a lot of that work, too. Eventually there were wives up there, although most of the wives preferred not to live there. They would prefer to live in Arequipa and have their husbands come down every weekend or two.

Adapting to Modern Housing

Chall: Who lived in the housing that you built? Are those miners?

Swent: Yes. We built a few houses for staff but the big bulk of them were for the hourly paid people. We literally built dozens and dozens of houses. I don't know how many we finally built, but we kept building them long after the property went into operation. We were building them all along, forever it seemed.

Chall: Was that like the type of housing that you built for labor in Tayoltita?

Swent: Oh, they were better, I think. By then I think standards had all improved in third world countries. The big problem we had with them was a lot of the people didn't know how to cook on a stove. They were used to cooking over open fires. And they weren't used to plumbing; they didn't know anything about plumbing. One of the big foods in Peru is guinea pigs. A guinea pig is called a cuy. And these people would move into a home, say, an apartment. They're really apartments, not houses. There were generally four or five apartments in one building. They were all one level, just one following the other horizontally. They would move in there and instead of using the bathroom as a bathroom they would board it off and raise guinea pigs in it.

Chall: [chuckles] Interesting!

Swent: We had two social workers, two women who were excellent. They spoke Aymara and Quechua, which were the Indian languages. Their job was to educate these people on how to live in a modern house, how to use pots and pans, how to use the bathrooms, and that sort of thing.

Chall: Did you feel a need to do that, rather than build facilities--

Swent: Well, it was almost essential if you wanted to keep the housing in good shape. If they didn't know how to use it they were destroying it. They were destroying bathrooms, for instance.

Chall: I just wondered about building bathrooms, but I suppose they had to go someplace.

Swent: Yes. And you would rather have them going in there than just going outside.

Chall: They might have cooked over a fire, I suppose, in an open courtyard as I think they do some places in Mexico. But each one had a kitchen? Or was it a community kitchen?

Swent: No, no, they all had their own little kitchen. It wasn't really a separate kitchen, in some places it was just a corner of a big room.

Chall: With what kind of stove?

Swent: They were for using wood.

Chall: What did they do about food? I mean, aside from--did they have to stop raising guinea pigs?

Swent: No, I don't think they've ever stopped raising guinea pigs. [laughter]

Chall: That's their meat. They might as well raise guinea pigs as chickens, I suppose! [laughter]

Swent: Yes. We set up stores and there was a tremendous traveling salesman type thing where trucks would drive in during the daytime with all kinds of stuff to sell. The wives would congregate around them and buy what they wanted. Then as I say we had a store that had staples in it. It was not run as a company store though. It was just run to supply their needs. There was no charging against wages and that sort of thing.

Chall: In the Tayoltita area I remember you mentioned the fact that the company staff had its own vegetable garden, and I guess the

laborers did, too, to some degree. Everyone grew his own, whatever he might need, to some extent. I wondered if that was ever done in Madrigal.

Swent: No. No, it was a pretty inhospitable place to try to grow much. Now, there was a lot of growth up around Chivay. It was just a tremendous agricultural district with all these little terraces. But they all had to be irrigated; it was all irrigation. There were works all along the Colca River, down through the villages. And the town of Madrigal had its own terraces and things. As I say, we bought some of those terraces for the tailings disposal.

In fact, one of the things that we had to protect was a water intake for the irrigation system from the Cahuira River. This took off at about the same point where we built our water intake. In our construction work we had to be careful not to damage their ditches. We covered them in places so as not to damage them and the water flow would continue.

Trips to Peru ##

Swent: On my first trip down there on the drive out from Arequipa to the mine I was just like a little kid. We drove out on a Sunday and I was just like a kid taking pictures of it. I had heard so much about Peru all my life but I had never been there before. I photographed every llama, I think, that we ran into, and there are a lot of them! And I tried to get a lot of people pictures.

Arequipa itself is pretty, too. It's surrounded by two volcanic mountains. One is a perfect volcanic cone called Misti. It's about 18,000 feet. And the other one is called Chachani, and that's about 20,000 feet high. They almost always have some snow on them. Then between the two mountains, behind them is the Alti Plano. And that was all absolutely new to me.

Chall: Yes, and I noticed when I was here last time that you had done and still keep up with quite a bit of research on Peru. Had you done quite a bit of reading before you went down?

Swent: Yes, once I knew that I was going to go down I started reading up on it.

Anyway, we drove out on a Sunday and the mine construction staff had planned a trout fry up on the Colca River, just below the town of Lari. We had a great time on the shores of the river there, frying trout. We arrived there late in the afternoon, much

later than anticipated because I took so long taking pictures. But it was a good introduction and I enjoyed it very much.

Chall: Where did the trout come from?

Swent: From the Colca River.

Chall: So many that they're available just by throwing in a line?

Swent: No, no, they dynamited them.

Chall: Oh, I see.

Swent: The mining camp techniques.

The country was nice and green. It was September and this is their spring down there. They had planted their crops and were irrigating them, and things looked nice and green and all these andenes--that's what they call those little terraces; "place to walk" is what it literally means in Spanish. Probably I don't think I've ever enjoyed a trip so much as that one.

Then I went down again in December of '70. At that time we had a marvelous thing happen. I was staying at the Hotel de Turistas but we had been invited to somebody's home for a get-together of mining people. Walking up the street to get there the volcano Misti was just above us. The moon was rising, and the moon was absolutely right in line with the crater of Misti and it looked as if it was being shot out of the crater. It was marvelous!

That was a very interesting session. One of the people at this party there was a manager of Anaconda locally. Now, Anaconda had a big property that they had been holding south of Arequipa called Cerro Verde. It was a copper prospect that they'd been working on for years, and it was one of these properties that was included in the new government's regulation that the claims either had to be abandoned or put into production. Anaconda didn't want to put it into production so they eventually gave it up. This was December of '70 so they were running right down to the wire there.

What this manager told me I was just appalled at. For relationships in a foreign country I thought this was terrible. They had drilled thousands of feet of diamond drill core and had core from all of this drilling. The core in these projects is normally kept in racks in sequence, in the same sequence as it comes out of the ground. In these core boxes at every five feet or so you put in a little wooden block with a number on it indicating the number of feet from the collar of the hole, so that the person logging it can tell where different things occur. This is

necessary because core recovery is never complete. Often core going through soft areas and that sort of thing disintegrates and never comes out in the core, so that if you just log it without knowing where it came from, you might log something as having been at five feet when it actually would be at ten feet of depth because of core that wasn't recovered.

So the manager told me that Anaconda had something like 50,000 feet or more of core drilling. In giving up the properties they had taken all the files that they had and taken them out of the country, that is, geologist's logs of what was in the core. And then they had pulled all of these little wooden plugs out of the core boxes so that when the Peruvians came to log it they wouldn't know the depths. I didn't see how that was calculated to help relations at all. But he was quite proud of that. It shows a--

Chall: Terrible arrogance.

Swent: --difference in attitude.

Chall: Yes.

Swent: Then the next trip I made was in March. Then in June--

Chall: Oh, you went down every three months or so.

An Interesting and Exciting Family Vacation in Peru and Chile

Swent: Yes. In June we decided to make a family vacation in South America. I took Lee and our son Richard and daughter Jeannette down. We started out in Panama. Lee had a classmate who was married to an officer who was in the U.S. Army and was lieutenant governor of the Panama Canal zone at the time. They were just being transferred out. This was their last few days there when we were there. But we had a very enjoyable stay in Panama, stayed there for several days, went through the canal on an army boat. Jeannette got to open one of the locks. They took her into the control rooms and they let her move the lever that opened the locks and that sort of thing.

Then we flew on down to Bogota and visited the family of a Colombian girl who had been staying with us at home here in Piedmont. We were there for several days doing some sight-seeing and then flew on down to Quito and spent a couple of days there and then went to Lima, where we met up with Beynon. Elmer Shields was also there.

Then before going on out to Madrigal we did a side trip up from Lima, taking the train up to a town called Huancayo. We stayed in a little place outside of Huancayo called Huaychulo. A very interesting area. We went through Oroya where the big Cerro de Pasco smelter is. Then we returned by railroad to Lima. The railroad is a spectacular one. It's often featured in various travel movies and things of this sort.

Chall: Where did the railroad go?

Swent: Well, it was originally built to serve the Cerro de Pasco mines. The Cerro de Pasco corporation had their headquarters in Oroya, and that's where their smelter was. They had mines around there which were all served by railroad. This went up over 15,000 feet. I think it's supposed to be the highest railroad in the world.

Chall: Is it diesel?

Swent: Yes, it's now diesel. It probably originally was steam.

In Lima we had dinner with a fellow named Williams who was with Asarco and whom I had known in Mexico. He was now retiring out of Peru because they were losing their properties under the same decree. Also had another dinner with Palominos. Palomino had been the other Peruvian delegate to the Geneva International Labor Organization meeting that I went to and I had met him there.

Then we flew up to Cuzco, went to Machu Picchu. We had arranged to stay overnight at Machu Picchu because we had been told that was the best thing to do. It's very difficult because they have a very small hotel there, but we did get in. It was beautiful, absolutely marvelous. And staying over is well, well worth it.

Then we went back to Cuzco and took a side trip out of Cuzco driving.

Chall: You drove?

Swent: We hired a car and drove to a town called Pisac, which is very well written up in tourist books for its market. It has market once a week, on Sunday, and we happened to make it on Sunday so we made the market there.

Chall: It must have been colorful.

Swent: Very, very colorful. And we went down to a town called Otobamba, and to Ollantaytambo where there had been a big fight with the

Spanish. One of the few places where the Incas almost won. They didn't, but they almost beat them there at Ollantaytambo.

Then on the way back to Cuzco the driver ran into a cow and damaged his radiator. [chuckles] The cow got thrown off the road.

Chall: Damaged the cow, too.

Swent: Oh, I imagine it died. But the radiator leaked all the water out. The driver didn't know what to do so he got out a big plastic bag that he happened to have somewhere in the car. There was a water ditch running alongside the car so he filled this plastic bag with water. The plastic bag had a lot of holes in it but he could get enough water to the radiator that we eventually got it filled. We drove a few miles and then stopped and filled it again. We just kept going that way until we finally got back to Cuzco.

Then the next day we took the train out of Cuzco down towards Lake Titicaca to a town called Juliaca. That was an all-day ride through the Alti Plano. We stayed overnight in a little hotel in Juliaca. Then the next morning we took the train that ran to Arequipa from Puno. Juliaca is just a little ways on the line from Puno. We got on the train at Juliaca, and Lee and Jeannette went on to Arequipa and Richard and I got off at Sumbay, where Art Beynon met us and had a car there, a taxi. We drove up to Madrigal from there. Lee and Jeannette were met in Arequipa by Victor Mejia. He took them to the hotel.

Honored Guests in Madrigal

Swent: Then what we had arranged because of the lack of facilities for women to stay at Madrigal, we had Lee and Jeannette and Mrs. Beynon come up in a colectivo, which is essentially a private car. But people are licensed to drive certain routes. They don't have to have a schedule or anything; they're just available when somebody wants them. Anyway we had a colectivo arrange for them to leave at about 4:30 in the morning from Arequipa and drive up to Madrigal and get there in time to spend the day there. So they got in about 9:00 and we drove them around.

They had a great big lunch for them there at the staff dining room. But time was sort of going by. There were lots of speeches and lots of delays, and lunch got pretty late, and it was around 3:00 and they were getting anxious for them to leave. We made motions for them to leave and take the colectivo back so that they would get back before it was too dark. But oh, the cook got very

upset: the main piece de resistance had not yet been served. So they waited a while longer and he served his main dish. It turned out to be cuys [guinea pig].

Chall: It's all right if you don't know.

Swent: Yes.

Chall: What was the occasion for all of this, the speechmaking?

Swent: Well, just the fact that they were staff ladies. They had never had any ladies out there before.

Chall: Oh, I see, so it was really in their honor?

Swent: Yes. Then the next day Richard and I drove from Madrigal to Sumbay and then on to Arequipa by train. We picked up the train at Sumbay where we had left it two days before. Then after Arequipa we drove back over to Puno by car, but by a different road. There are two roads to Puno and we took the other one, which is to the south. We had a very interesting trip over there. Then we went across Lake Titicaca by hydrofoil and went down to La Paz and spent a day or two there.

Then we took a tour down from La Paz which is 12,000 feet, and the airport is at 14,000 feet--we took a tour to a little town called Coroico, which is down in the jungle region of Bolivia. That was a real experience, awfully rough country, a narrow road just carved out of the mountainside in places. We had another woman with us who was just almost hysterical.

Chall: I was wondering whether you could accept that kind of travel. Not everybody can, of course.

Swent: She refused to come back. She wouldn't come back on the road. I don't know how she ever got back. We drove back in the afternoon. We got down to this destination town and had a very nice lunch, saw a little coffee plantation and things, then drove back in the afternoon.

Then we flew the next day from La Paz to Santiago. We had a very interesting experience at the La Paz airport, which as I said was at 14,000 feet. The plane at that time came from Lima to La Paz, which is from sea level to 14,000 feet. For transit passengers it isn't too bad. They can just sit in their seats in the plane. But they had some sort of a mechanical breakdown on the plane, and all the passengers had to get off. And there were all kinds of people with breathing problems. They had to suddenly supply everybody with oxygen tanks and everything. That's a

tremendous difference to go from 0 to 14,000 in that short a time. They were walking around the airport, sitting around the airport, all breathing oxygen!

Anyway we flew on to Santiago and stayed there for several days. We had a tour down to Valparaiso and Viña [del Mar]. It was wintertime down there at this time. This was July by then. We went up to a place called Portillo which was a skiing resort, then hired a cab to take us to a little town called Las Cuevas which was across the border into Argentina, had lunch in Las Cuevas, and then came back to Santiago.

Chall: How did you plan all this, where you were going? Did you plan ahead?

Swent: In stages. We planned the early part from here and the Peruvian part we did with a Peruvian travel agent that the company used in Lima, also the part down to Santiago. There was a bus strike on in Chile at the time. Now this was in Allende's period. He was president then. And there were all kinds of problems in Chile at the time. One of them was this bus strike, so the airlines were particularly crowded. We tried to get a reservation to fly from Santiago to Arica, which is a border town with Peru, but couldn't get a reservation. So we flew as far as Antofagasta. We could get that far, which is almost halfway up. Then we rented a colectivo from there to drive up to Arica.

From Desert to Jungle and Much in Between

Swent: In the long run, looking back on it, that was probably better than flying. I had never been through that Atacama desert. This was where nitrates were mined in tremendous quantity back in World War I time. It was a very large Chilean industry until synthetic nitrates were manufactured, then all of a sudden the natural nitrates business just went to pieces. We saw all sort of abandoned nitrate mine places along the way. We passed the Tropic of Capricorn.

Then the driver had planned to get gas in a little town called Huara Huara. There was one gas station in town, and when we got there the pump was broken down. They had it all to pieces. The gas pump was all in pieces. No, I'm sorry, it wasn't the pump; it was the diesel engine which ran and gave the power to work the pump. It was broken down and they were assembling it. We had to wait there for about two hours and they finally got the engine put

together. We had visions of staying in this desolate, desolate town, absolutely desolate, windswept, out on the desert there.

Chall: You really take your chances when you go off on trips like that.

Swent: Yes. Anyway, they finally got the gas pump working. We filled up and went on into Arica. But we didn't get there until 9:00 at night, and by then we had trouble getting a hotel. We had to drive around to several places. We finally got into a place about 10:00; it was 11:00 by the time we got settled.

Then the next day after doing a little sightseeing in Arica we drove up to Tacna in Peru, which is just a little ways the other side of the border into Peru. We had arranged ahead of time to visit Toquepala mine, which is a big copper mine of Southern Peru Copper Company, made up of an amalgamation of American companies. Had a fellow named Leonard DeJong who had formerly been a metallurgist for us at Grants, and he was now working there. So we had arranged to visit them. He arranged for transportation from Tacna to the mine, some sixty or seventy kilometers inland again, up in a moderate altitude, around 10,000 or 11,000 feet. Toquepala was an existing mine. It was in operation. And it had the only other contract with the Peruvian government that was similar to Madrigal's. There were only two of those contracts ever executed. They were developing another property called Cuajone, so Leonard gave us a tour of both the operating pit at Toquepala and the one that was being developed at Cuajone a few miles away. These are tremendously large properties, 50,000-ton-a-day production and that sort of thing, open pit, very large processing mills.

Chall: Getting the same variety of materials?

Swent: Well, they were just producing copper concentrates. They had a smelter down on the coast at a place called Ilo, just north of Tacna. So we drove down after we finished visiting Cuajone and Toquepala to Tacna and went out to Ilo and had a tour through the copper smelter. It was the only copper smelter I had ever been in up until then.

Then we flew from Tacna to Lima. From Lima we flew out the next day to Iquitos.

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Iquitos is in the jungle portion of Peru, almost at the easternmost end of the northern Peru bulge, very close to Brazil. We spent a couple of days there at a lodge out in the jungle that is just a tourist sort of thing, just set up to give you an idea of what the jungle is like. There was another couple on the same

tour. Their name was Miller, and he had two or three still cameras and she had a little movie camera that she was taking pictures with. She was doing a terrible job with it, just moving the camera around so much that I'm sure it would make you seasick to watch the movies. Finally, after a day I couldn't stand it any longer and I told her, I said, "Gee, your pictures would probably turn out a lot better if you would move the camera more slowly and hold it steadier." She said, "Oh, that's what my husband tells me all the time," and she kept on doing the same thing.

At any rate, we didn't know who they were. And I guess it got to be more than they could stand so finally about the second day she said to Lee, "Well, you know, we're important people." [chuckles] We still didn't know who they were. So finally Lee asked who they were. Well, her husband was a movie director, the director of the movie called "Love Story." They were in South America on a tour promoting the movie, and they had just been wined and dined everywhere. They decided to go up to this jungle retreat just to get a few days' peace.

Chall: She couldn't really stand it, though.

Swent: She couldn't stand it, no! [laughter]

Chall: And she was going to take movies the way she wanted to take movies, too.

Swent: We'd never seen the movie, so we didn't know who he was. So we said, "Well, maybe we've seen some of the other movies. What other movies have you made?" He named them every one and I'd never seen any of them! [laughter] But we were very friendly anyway.

The lodge that we stayed at was called Yanamono Lodge. It was, oh, an hour's ride down the Amazon River from Iquitos. You rode down by boat and went into the lodge which was just off the water. You're right in the jungle, absolutely. It was really fascinating. Then they took us on little jungle tours in the evening. We stayed there a couple of days and then flew back to Lima and then back to San Francisco.

Chall: My, what an experience for you and Lee and the two children!

Swent: It was a marvelous trip, yes.

Chall: Did the other two ever get a chance to go along on something like this?

Swent: Not to Iquitos. We took Christine down on a later trip, a number of years later. But she didn't get to go to Iquitos. We've never

been back to Iquitos. We did go to Macchu Picchu--well, that was on a different trip.

Chall: What ultimately happened with that mine then?

Events to Inaugurate the Operation of the Mine and Mill, 1972

Swent: Well, to get back to Madrigal, the next thing I've got to go into is the inauguration. We were ready to put it into operation in early 1972. We decided to have a formal inauguration. This was a tremendous event. Again, we had to bar women because the crowd got so big. But the minister of Mines and Energy, a General Maldonado whom we invited out of courtesy, agreed to go. This really was quite unusual, but made it a tremendous event. Of course David Ballon, who was the minister of mines under him, came. And lots of their staff came out.

So what Art had planned was, we chartered a plane from Lima to Arequipa to take everybody down there. It was an old DC-4, I think, a propeller-driven plane, but had lots of capacity. Flew down to Arequipa one day, and then the next morning we got on a special train that had been made up to go to Sumbay. We rode the train up there with special cars. Then at Sumbay we had a big cavalcade of cars and colectivos to take this group on up to Madrigal.

The plan was to arrive in Madrigal for dinner, but it turned out that this was the first time any cabinet minister had ever visited this part of Peru in people's memory. So, beginning with Chivay, each of these villages that we came to just had a tremendous reception committee there. He had to stop; the whole cavalcade stopped; they all got out and they made speeches and made presentations and embraced each other. He had to give a speech. We did this at each of the little towns and by the time we got to the town of Madrigal it was already dark. But of course the biggest crowd was at Chivay because that's the biggest of all the towns. They had a band there and everything out for us.

Anyway, we didn't get into Madrigal Mine until about 9:00 at night, so we were way behind schedule. We had a very late dinner and then went to bed. Most of these ministers and government people were put up in the now-in-operation staff hotel, the top staff hotel. I went along on all of this, and got lots of pictures.

Then the next day they had the formal dedication. The first thing they had was a Mass and then they had a parade where all the different departments of the company marched by in parade. They had a big stand there for the general and his staff to review from. Then they went up to the mill and he cut a ribbon and pushed a button to start the ball mill. Then they toured the mill. It was an open house. After the general went through the public was allowed to go through, and there were thousands of people that had turned out for this. I never realized how many people lived in that area. They had come from miles around. Then he went on a small short tour into the mine.

When we came out it was a little after noon. We went back down to the main camp level and had what they called a pachamanca. I suppose the only thing you could liken this to is a luau. Basically, you take pork and bury it in a pit that's been filled with charcoal and then fire it. It cooks slowly. You can also do it with other meats. They had tremendous amounts of food there; pork, and cuys, and chicken. The whole public was invited to this. There were just thousands of these Indians. I estimated there were over 3,000 people there.

Chall: Is that right? Where did you say this was? In Arequipa?

Swent: No, this was at the mine.

Chall: At the mine site? Yes, that's what I thought you said, but I can't quite visualize all those people being there. That was exciting.

Swent: It was. Then in the afternoon they had built a dancing platform. Each of these villages along the Colca River has a different women's costume. They each have their traditional costume and dances and so each of them put on exhibition dances in their authentic dresses. It was really very colorful and very interesting. In fact, I got so involved photographing all this that I almost got left out on the food. By the time I got around to eating most of it was gone! I did get some.

It was a very, very memorable event. There were people there from Marubeni, who had lent us the money, and from Toho Zinc, who were going to buy the concentrates. Lots of VIPs.

Chall: It doesn't happen in that area very often, once in a lifetime!

Swent: I think that's the only time any one of them has been there. David Ballon has been back there since then but as a private citizen, no longer as the minister of mines.

HOMESTAKE MINING COMPANY

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PRESS RELEASE

Paul C. Henshaw, President of Homestake Mining Company, today announced the formal inauguration of operations at the Madrigal Project in the remote province of Cailloma in the Andes mountains in Southern Peru.

The 500 tons per day copper, lead and zinc ore mining and concentrating project was formally put into operation by the Peruvian Minister of Energy and Mines, General Jorge Fernandez Maldonado, who undertook an arduous trip to the project site from Lima for the occasion.

The inaugural ceremony included Inca music played by a Peruvian Army Band and a parade past General Maldonado's stand by some 500 project employees.

Commenting on the $13,000,000 investment in the facilities General Maldonado said that the Peruvian Government welcomes foreign capital investment provided that the foreign investors are willing to abide by Peruvian law and social objectives, and credited Homestake Mining Company (a United States corporation), Marubeni Corporation and Toho Zinc Co. (Japanese firms) with financing the project under these conditions. He said that Peru's social future lies in developing its mineral resources and that these firms had made an important contribution to the present Peruvian Government's social goals.

After his speech, General Maldonado cut a ribbon and started up the ball mill in the concentrator. He then went on a tour of the underground mine, concentrator and auxiliary facilities. The tour was followed by an outdoor barbecue, local music and dances.

This was the first time in contemporary history that a government minister had come to this remote area. Some 2,000 residents of nearby villages, employees and visitors enthusiastically greeted the General and were fed at the barbecue.

Compania Madrigal, a wholly owned subsidiary of Homestake Mining Company, operates the Madrigal project for Compania Minera del Madrigal, a limited partnership in which Homestake has an interest of 5.782%. Compania Madrigal is the general partner, and has a 50% interest in the limited partnership. The mine produces ore which contains copper, lead, and zinc sulphides. The concentrator uses the flotation process to produce copper, lead and zinc sulphide concentrates which are sold to Toho Zinc Co. in Japan. Silver and cadmium are by-products.

The mineral deposit was discovered through the efforts of the late George Tower and an exploration group which was formed in 1965. In 1967 the property was acquired from the exploration group by Compania Minera del Madrigal. In 1969 this partnership entered into a special contract with the Peruvian Government to develop and operate the property. The contract permits the recovery of investment, guarantees tax stability for 10 years, and guarantees the availability of foreign exchange to send recovered capital and profits out of Peru. In May of 1970, a $6,500,000 loan was obtained from Marubeni Corporation of Japan and construction of the concentrator and auxiliary facilities was begun.

For release on Tuesday, May 2, 1972, at 10:00 A.M. Pacific Daylight Time.

Chall: Did your major Homestake people from up here in San Francisco go down?

Swent: I was the only one, I think. But we put out a press release here in the States about it, too. Anyway, it was a very memorable event.

As things went along one of the problems was that the loan that we got from Marubeni would not cover working capital. Under their loan policies they would not loan money for working capital. So when we got all through construction and ready to operate we didn't have any operating capital. By then the limits on exportation of currency up here in the United States had expired, but Homestake decided not to put any more money into the property. It had to generate its own funds. So we did local borrowings in Peru at fairly high interest rates, loans in soles--that's the Peruvian currency--and got going. We got enough money that way to get the first shipment off.

Visiting Japan to Inspect Smelters

Swent: Then at that point we decided that we needed to see how these concentrates were going to be received and sampled in Japan. So Henry Colen, Russ Wallace, who was a marketing man for Homestake, and I planned a trip to Japan along with a fellow named Takefumi Maene, who was an employee of Marubeni. He was an employee of Marubeni and spoke English. He had come over to San Francisco to help Marubeni and Toho Zinc negotiate the contracts for the Madrigal venture, and had worked with a lawyer in San Francisco named Roger Fleischmann. He eventually married the lawyer's secretary and took her back to Japan. They were living in Japan at the time that we visited there. He planned the whole trip. Marubeni bought all the tickets and conducted us around. We didn't even get to reimburse them for the tickets.

Later, in April, I think he came over to San Francisco on some work. We took advantage of that to take him to the Lode Star camp of the Piedmont Community Church, which is up in the foothills of the Sierras near a town called Westpoint. We spent a night there at what they call the International Youth Lodge, then took him on over to Yosemite and spent another two days touring Yosemite with him. We also took along a girl named Beatriz Zapata, a Colombian girl who had been living with us for some little time.

Anyway, he sort of led us around to the different smelters where our concentrates would be treated.

So we did that trip and I took Lee along on that one. It was a very interesting trip. Takefumi Maene set up a marvelous schedule for us. The copper smelter was at a place called Onahama, which was within a day's travel of Tokyo. So we went up in a day and came back to Tokyo. The zinc smelter was at a place called Anaka. Again, that was within an easy train ride north of Tokyo. We went up and spent the day there and then came back in the evening.

The Onahama smelter is on the coast. They receive both the zinc and copper concentrates and ship the zinc ones on up to the Anaka smelter. They entertained us at lunch there in a Japanese restaurant, all seated on the floor. It was horribly uncomfortable for me. It didn't have the little pits like our Japanese restaurants here in the U.S. do to put your legs down into. They did have pillows for you, but it was a very uncomfortable lunch although very nice. They did a beautiful job of entertaining us.

We went down to the Chigirishima smelter, which is on the little island of Chigirishima at the southern end. To do that we took the Bullet Train down and enjoyed doing that. We had to rent a small boat; they didn't have regular ones that ran out to the island, except for employees.

They arranged for us to stay at a Japanese inn on the way back from Chigirishima. We stopped at two or three places: Mihara, Onomichi, Kyoto, and Nara. We spent several days on the return trip. This was sort of a vacation trip.

In the Japanese inn, of course, they had kimonos for us and we slept on floor mats with little pillows. They had the very small, hot bathtubs with very hot water. So we were very grateful to Maene for that. It took us about two weeks to do all of this. It was just a very, very interesting trip. Then we came back to the United States.

Renegotiating the Toho Zinc Agreement

Swent: But while we were there, there had been quite a change in the dollar-yen ratio. Of course Toho Zinc's expenses were in yen and they were paying us in dollars. The change in the currency had been adverse to them. They wanted to renegotiate. And they also had a number of new pollution restrictions on their smelters in Japan, which were raising their cost. They wanted to renegotiate the concentrate purchase agreement to the tune of about a million-and-a-half dollars net cost to us per year. And of course we

MEMORANDUM

To: P. C. Henshaw

May 23, 1973

From: L. W. Swent

Re: Madrigal project
Actual Costs vs.
Projected Costs

As you requested, I have tabulated below the major unit cost figures and other data for the Madrigal project operation from the July 1970 projection compared to actual results for the 8-1/2 months operated in 1972:

	Estimate for 1972 contained in 1970 projection	Actual for 8-1/2 months operation in 1972
Metric tons of ore milled	157,000	120,973
Costs in Peru/ton milled-		
Production costs	$13.48	$13.70
Adm. & Gen. - Lima	2.46	2.61
Marubeni interest	4.28	3.68
Depreciation & Amortization	10.14	10.08
Mining Community - participation	-	0.01
	$30.36	$30.08
Net smelter return per ton of ore	42.70	27.49
Metal prices		
Copper -¢/lb.	60.587	49.505
Lead -¢/lb.	13.517	14.263
Zinc -¢/lb.	13.877	18.029
Silver -$/oz.	1.630	1.893
Cadmium -$/lb.	4,000	2.804

The figures given ve for actual 1972 results are for the period April 19 thru December 31, 1972. Under the terms of the Peruvian government contract, April 19 was established as the official date of commencement of operations. Prior to that date some 40,414 tons of ore were milled during the startup period, but the costs and revenues associated with these tons were charged and credited in their entirety to the development cost of the project. Thus, total ore milled from first trials of the mill thru December 31, 1972 was 161,387 tons.

The above cost comparison shows costs turning our to be very close to those projected in 1970. These will rise in 1973, due to the granting of a wage increase and milling of consi erably lower tonnage than expected in the April-May-June quarter due to fill problems in the mine.

To: P. C. Henshaw

Re: Madrigal project
Actual costs vs. Projected Costs - page 2 - May 23, 1973

The cash flow problems of the Madrigal project have arisen primarily from the grade of ore mined being significantly below ore reserve grade due to dilution in mining. This has resulted in production of less concentrate in 1972 than the 1970 projection contemplated. Grades of concentrates actually produced were initially lower than projected, but improved during the year to acceptable grades.

When the fill program in the mine is brought up to date in June, the amount of dilution should decrease. Current metal prices are all high. These two items will improve cash flow and net smelter returns per ton of ore considerably.

L. W. Swent

xc: A. F. Beynon

resisted this a great deal. We had not gone on this trip to Japan to negotiate; we had gone just on sort of an inspection trip.

They cornered us one day in Tokyo, and they treated us very kindly. They set us up and took us to a geisha house one night and made special arrangements that the ladies could attend--Hazel Colen and Lee--this sort of thing.

But then they invited us to meet with them one morning in Tokyo, and all of a sudden they opened up and wanted to negotiate this concentrate agreement again. We had a terrible time getting out of that. Some pretty acute arguments arose and it was, of course, difficult. They were speaking to us in English but speaking Japanese among themselves. Maene was sitting in on the meeting and he was on the Marubeni staff. Marubeni was sort of in between on this one. They were the trading company that had arranged the deal, but they were in between and they wanted to protect their loan and they knew that anything more that we paid for the concentrate sales agreement might endanger their loan.

So it was quite a bitter session. Maene was arguing mostly in our favor, and at one point the fellow named Yamashita, who was the principal negotiator for Toho Zinc, just opened up on Maene furiously. I've never seen a Japanese person lose their cool so much as he did. He just opened up and lectured him something terribly in Japanese. Later Maene told me, he said, "That's terrible for me to do something like that. He was scolding me for taking your side. He said I had to stay out of the negotiations and that sort of thing." But for a Japanese to scold somebody in public like that is just unheard of.

Anyway we managed to get out of it all by saying that we would give it serious consideration when we got back home and managed to do the calculations and this sort of thing.

Chall: That's all you really could do.

Swent: Yes. Eventually we did modify the agreement some because in all equity you just had to because--well, they were saying they would have to declare force majeure and not accept the concentrates. And if we went elsewhere we thought we wouldn't get any better terms anyway.

So after that things went along fairly smoothly for several years until about 1975. I got sick in '74 and as I said, gave all this up. When I came back they had this new reorganization plan that the management consultants had recommended. This was divisionalization of the organization where there was going to be a lead-zinc division, or a base metals division they called it then,

a gold division, a uranium division, and an international division. Madrigal, even though it was a base metal mine, was to fall under the International Division. They'd selected Henry Colen to be the head of the International Division.

Well, Art Beynon said he would not work with Henry Colen. This meant getting a new manager. So Art agreed to stay in Peru until they got a new manager to replace him. There were very strong feelings on this. Art liked Henry personally, they're still good friends, but he said he just wasn't a person he could work for. He'd had the experience of working for him for a short time and knew what Henry would be like to work with. And Paul Henshaw said, "Well, I've appointed Henry as head of the International Division, so Henry's got to solve it."

So the solution was for Beynon to come back to the States and work for me. I was going into this vice-president of engineering job and had to get a new manager. Well, Henry came up with a fellow named Jack Schissler, who had been the manager in the Dominican Republic for a gold property called Pueblo Viejo, which was owned by the New York Honduras and Rosario Mining Company, which became a subsidiary of Amax. At any rate, Jack went down and then took over the job. He agreed to go for five years, at which time he would be of retirement age and wanted to retire.

So basically I didn't have too much to do with Madrigal from then on. Metal prices fell. In the early years we had had good metal prices. With the good metal prices we managed to get the Marubeni loan paid off with all interest. But the prices fell before Homestake got its initial investment out. We got it out little by little but it was very, very difficult.

Art kept stressing the need for building more housing and more housing. This was very expensive, but the pressure was on from the Peruvian government to do this. The property became, really, in Peru a showcase place. The Peruvian government was very proud of it, and of course they wanted this to set the example for the Cuajone-Toquepala contracts. Everything that we did was setting the stage for them, unfortunately.

But anyway, they liked it and liked the project and thought we'd work well with them. It was a real showcase.

Chall: Did they offer you better financial arrangements because of this?

Swent: No, they didn't.

Troubles Negotiating in Three Languages

Swent: Oh, I must recount another really interesting but bizarre situation. When we first started in the operation we had to negotiate, arrange for the payments to be made from the Toho Zinc's payments to Madrigal for a percentage to be retained and paid to Marubeni to pay off their loan. The Peruvian government had very tight regulations on currency. Their requirements were that all this currency, the gross amount of each invoice, be remitted to Peru. But our loan agreement had called for the money from Marubeni to be deducted in Tokyo.

So we negotiated a thing with the Central Reserve Bank of Peru whereby they set up a special Central Reserve Bank account with the Bank of Tokyo. The money from Toho Zinc was to be deposited in this special account. And by being in that account they considered that that was in Peruvian hands, because it was a Peruvian account. Then the Bank of Tokyo could deduct from that account the appropriate percentage and pay it to Marubeni.

Well, to do this we had to have a letter agreement between the Bank of Tokyo, Central Reserve Bank, and the companies. So Ralph Shiller was the one in Lima to whom it fell to negotiate this letter with the Central Reserve Bank. He worked on it with the Central Reserve Bank people and they finally drafted it. It was in Spanish and it was about a page and a half long, typewritten, single-spaced. When he got it drafted to where the Central Bank was satisfied with it, he sent me a copy and gave a copy to the Marubeni office in Lima. They telexed it over to Tokyo.

In the meantime Toho Zinc and Marubeni had a lawyer in San Francisco named Roger Fleischmann. He called me. I told him I had a draft of it and he wanted to see it. I said, "Well, it's in Spanish." "Oh," he said, "I can't read that." So I said, "I'll translate it for you." So I did. And it came out about a page and a half long, same as the Spanish version. I sent it over to him and after a day or so he called me back and said, "Well, this is fine. I don't see anything wrong with this. I think we can accept it."

So we had a big meeting arranged in which the Toho Zinc and Marubeni people came over from Tokyo. We met in the Homestake offices in San Francisco and Fleischmann came up. Then Yamashita pulled out the Japanese version. It had been telexed by Marubeni to Tokyo and translated from Spanish into Japanese, then translated back into English. He pulled out an English version and gave it to Fleischmann and it was only about a half a page long. Fleischmann looked at this and said, "This will never do. We can't agree to

all this. This is terrible. I thought you said it read like this," and he pointed to the copy I'd given him. And I said, "That's what it says in Spanish. I'll stand by my translation."

It turned out that this was just a tremendous language problem. The Japanese language is not as specific as Spanish and English, so that by the time it got translated into Japanese there were a lot of simplifications made or ambiguities introduced. And it was ambiguities that were bothering Fleischmann. By the time it got translated back into English they were even worse! [laughter]

Anyway, once everybody agreed that my translation was all right and that that was what the letter said, then we went ahead and signed it. That was the system that went into effect.

Chall: That's marvelous. Three languages.

[Date of Interview: July 29, 1988] ##

Swent: We were trying to come to the end of Madrigal, were we not?

Chall: All right.

The Trip to Nicaragua, 1973

Swent: When I started looking into it I found there's some sequence after the mid-seventies that I had missed.

In 1973 I had made another trip down to Lima. On the way back I stopped in Managua, Nicaragua for two days to look up two families. One was the Hellers--he had recently died, and he had been a limited partner, an old-time metallurgist who had known George Tower, who was the exploration chief of the group that found the Madrigal property. The problem I could see coming up was that the Hellers had many heirs. Mrs. Heller was still alive. The interest might get broken up. They had a very small interest to begin with. We were afraid that it would just get to be an impossible number of small holders. At any rate, I saw her and she told me that the whole matter was in the hands of an attorney in Reno.

Then she told me how to get hold of an outfit called Empresas Nacionales, S.A. as an abbreviation. That means Sociedad Anonyma,

or Anonymous Society or Corporation in Spanish. And they were even a smaller partner than the Hellers had been. They had had several members that owned this stock, and they had put it into a company that Donald Spencer's mother ran. But he actually did the work because she didn't know really what the business was. I finally was able to locate him through Mrs. Heller. He was running a new plastics factory quite a little ways out of town. I would take a taxi out there.

Donald Spencer was quite a live wire, a lawyer educated in the United States but born in Nicaragua. He bought gold and gold specimens and gold coins from people. He had several people come in, and he was buying and selling while we were talking.

Anyway, I reviewed the Homestake situation, and I told him that we had written a lot of letters to him about things, reports that asked for replies, and we had never gotten any replies from them. We wondered if they were dissatisfied with the way we were running the company or something. And he said, no, on the contrary, he thought we were running it well but that we were burying him with paper, so they just ignored it all. But he said he would be interested in having Homestake make an offer to buy them out, that their interest was so small that it was not worth carrying. So I said I would have the company make an offer. Then when I told this to Mrs. Heller, she said, "Well, have them make an offer to my husband's estate, too, for our interest."

Earthquake Damage in Managua

Swent: The really interesting part of the trip was seeing the earthquake damage in Managua. The earthquake had occurred less than a year before, and it was fantastic just to realize what it could do. Very strong earthquake, I forget the power of it. But one of the things that affects how serious an earthquake is is the type of land that the buildings are on. The earthquake hit most severely in the area of Managua that was built along the beachfront, the waterfront of Lake Managua. It was all really sedimentary fill from streams, and it just shook like a bowl of jelly.

They made no attempt to rebuild there. They just fenced the area off. They took several blocks and just fenced the area off and left the rubble there. This was the center of town, too, where it had happened. They just decided to relocate the center of town several miles further away, away from the lake. They were rebuilding and there was a great big construction boom, of course, going on in this new area, which was, as I say, several miles away.

I forget what direction, but it was up and away from the lake. But they had skyscrapers there that had been damaged, mostly at the lower levels. What happens to the skyscrapers is that they sway. If they sway too much the steel gets metal fatigue down near the ground level, about the second floor. That's where it usually buckles and breaks things out.

Chall: They just left those, too?

Swent: Yes, they were still standing but abandoned, nobody in them. The big church down at the waterfront plaza had the clock stopped at the hour that the earthquake struck. The church wasn't as badly damaged, but it was not in use. Other houses were absolutely leveled.

A Peruvian Student Lives with the Swents

Swent: Then in early 1974 I had a phone call from Art Beynon telling me that he'd been approached by David Ballon, who was still Peruvian director of mining, for help in a personal matter. He said Ballon's son Oscar, age fifteen and a half, had asked his father the year before to arrange to have him come to the U.S. during the 1974 Peruvian summer school vacation, which was in January to March, as an exchange student under some international student exchange program. There are many of these. And in the press of his work David Ballon had not gotten an application made out in time. He wanted Art to find out if there was any way he could get his son into an exchange here at the last minute. The Ballons were willing to take a U.S. boy or girl in their home on a similar exchange basis.

So Art asked me to look into the possibilities and let him know what I could come up with. And since CMDM company--Madrigal, as we called it--is highly dependent on good relations with the minister of mines and the director of mines, particularly, Art thought any help we could give in this matter would be quite helpful in maintaining good relations that he had already established.

I didn't really know much about international student exchange programs, although we had worked for a number of years with the American Field Service. Lee had served for several years as director of the Piedmont, California chapter. But it was our opinion, after we talked about it, that with the shortness of time it would be impossible to arrange an exchange through any organization, to make the arrangements with the public school and

get a student visa, et cetera. So we recommended to Art that Ballon send his son up as a tourist and he would live with us and we would enroll him in the College Preparatory School in Oakland.

Chall: What school was that?

Swent: That's the name of it, College Preparatory School. It's here in Oakland and it's a good school. It's almost in Berkeley. I think it's on Claremont Avenue, though they may have moved recently. As far as having an American student go down there and stay with them, that would just be something that would be deferred to a later time when we could find someone who wanted to do it.

Chall: So did you bring him up here?

Swent: I told Art what the tuition charges would be, so he said he'd be willing to have the company pay the travel and tuition, purchase the tickets in Peru, and pay the tuition from San Francisco. So, on this arrangement his son, Oscar Ballon, flew up to San Francisco in late January. Three days later we had him enrolled at the College Preparatory School for a two-month period. The school had agreed to charge him tuition just on a pro-rated basis for the time he attended, not for the full term. So Oscar stayed until late March, then returned via Mexico City where he visited some friends and then went on to Lima.

We had a back-up in case we had to leave town or something. He was completely dependent on the people he lived with because he didn't know much English. The idea was for him to learn English. In case we left town or something the Joseph McKinleys agreed that they could house him because their son, Andrew, attended the same school. Joseph McKinley was the chief counsel for Homestake at the time.

So the arrangement worked out very well. We had several phone calls from David Ballon and his wife. They talked to Oscar very often, and we got to like Oscar very much. He was a very large, heavy-set boy, very ebullient, full of fun. He had difficulty learning English. And of course, two months really probably wasn't long enough. Lee tried to coach him a little bit, but she really didn't take him on as a student because he was also trying to do his schoolwork.

In later years, just to follow that thing out, his father sent him to the Colorado School of Mines. He spent, I think, three or four years there. His brother, Carlos, also went up and studied there. Then they transferred to the Rolla School of Mines in Missouri for one year. I arranged for them to visit Lead and also

to visit the lead-zinc operations with Amax down in Buick, Missouri.

Chall: Are they in the mining industry now?

Swent: Oh yes, they're working with their dad. Their dad is now out of the ministry. He is working as a private citizen and consultant and has his own investments and is quite well-to-do. They're working for him. We thought this was probably a tremendous help in our relations with the Ministry of Mines.

Then of course in 1974 I became sick. Paul Henshaw, when he divided up my duties among other people, did not give the Madrigal job to anybody else. He kept that himself and he tried to work with Art directly. Well, when I finally got back to work on January 7, 1975, I found that's what Paul was doing. He really couldn't do it adequately because he had too many other duties. Art had lots of detailed questions that needed to be answered by people that had more time than Paul did to look into things. Paul didn't have the time.

Continuing Interest in Madrigal, 1975-1982

Swent: So I found that I had been assigned this new job of vice president of engineering. There was a copy of the management consultant's report on how the company should be structured and it had an outline of the proposed duties there, so I started studying that. But it occurred to me that Paul needed some help on the Madrigal end of it, so I went in and volunteered. I knew when it came around that they hadn't really organized completely into this new structure. I knew that when Henry Colen took over the International Division that Art would be quitting and a new manager would have to be obtained. In fact, they were looking for one at the time. And Paul knew this, so Paul was keeping Art working directly for him until a new manager was obtained who could work under Henry Colen. So I offered to take this off of Paul's hands and handle it for him. He was very grateful for that. So I got back into Madrigal for a period of time in early '75.

Chall: How long a period did you continue with Madrigal? Until you retired?

Swent: Well, I was in and out of it for years afterwards. I thought I was going to get out in '75.

HOMESTAKE MINING COMPANY
650 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94108

CABLE: HOMESTAKE
TELEPHONE (415) 981-8150

February 23, 1979

Mr. David Ballón
Calle 1, No. 416
Urb. Corpac, San Isidro
Lima, Peru

Dear Mr. Ballon:

I understand that Mr. Swent advised you of the good news that the Homestake Board of Directors reviewed the Madrigal investment and determined that they are quite satisfied with the investment and look forward to further development of Madrigal.

I want to personally thank you for your interest and for helping me better understand the situation in Peru. Your favorable remark that in your opinion now is a good time to make investments in Peru was a very important expression and was given much weight in our study.

It was a pleasure to meet you and spend a few moments with you on the first day of this year. I do hope we will have a chance for further contacts in the future.

Please also thank Mr. Birkbeck for the rather complete Resume of Compania Minera Chavin, S.A. which he so kindly furnished me over the New Year weekend. I am sorry I did not have a chance to meet him in person but will try to do so next time.

Mr. Swent joins me in sending to you our warm regards.

Sincerely,

Original signed by
R. J. Stoehr

R.J. Stoehr
Senior Vice President

RJS:hp

cc: J.H. Schissler

bc: H.M. Conger
✓L.W. Swent
A.F. Beynon

Adventuresome Family Vacation and Business in Latin America and Peru

Swent: In May [1975] our daughter Christine graduated from the University of Virginia in law. We went out to the graduation. Then she wanted to immediately come to California and start one of these bar exam cram courses that are given. The course started just two or three days after she graduated, so she didn't have time to drive her car back. So our other daughter Jeannette and I drove the car back and Lee and Christine flew back.

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On July 30 Lee and I flew down to Managua again. We had promised Christine that as a graduation present we would give her a trip to Peru. But she wasn't quite finished with her exam cram course and hadn't taken the exam yet, so she was going to join us in Lima. We flew to Managua and stayed at the Intercontinental Hotel, which had had very little damage in the earthquake and was now in good shape. Saw Mrs. Heller again and Donald Spencer. I had told Homestake to make them an offer, but Homestake is a very conservative organization and they made offers I knew wouldn't be acceptable. So they said no, they weren't interested in selling at those prices.

It turned out that the second day of our visit there was a public holiday and a religious holiday. They had a tremendous parade. I've never seen such a Latin American parade, very unorganized, with a certain virgin that was being paraded, brought out and paraded on the backs and over the heads of people. People were all dressed up in costumes. It was different than any Latin American parade I'd ever seen before.

Then we flew on to San Jose in Costa Rica where we visited Abe and Viola Pena, whom we had known very well in Grants. They were Hispanics, of course, but spoke English exceedingly well. They had started out with the Peace Corps in Honduras after we left Grants and then worked up into a position in Costa Rica where he was the director of AID [Agency for International Development]. He had a great deal of money that he controlled that was being given out to projects in Costa Rica, which he said made him actually in many ways more powerful in Costa Rica than the ambassador, because the ambassador didn't control any funds at all.

They were living in a beautiful home in San Jose. They drove us around and we saw some very scenic parts of it. They arranged a big dinner in our honor to which they invited the ambassador, Ambassador Todman, who is a black. He was very capable; I was very

impressed with him. In later years I know he was considered for the position of ambassador to South Africa, but they decided that he was better off to stay in Latin American affairs, since that was where his experience was. Then the last we heard of him, he was ambassador in Denmark.

The Pashpap Porphyry Copper Prospect

Swent: Then we flew on to Panama City and Lima where we met Christine. Then the very next day we separated. She flew over to Cuzco to spend a couple of days there and went on to Macchu Picchu and then back down to Arequipa. Lee and I flew up north to a place called Trujillo. Then we went in by jeep up to a prospect called Pashpap. Actually, we couldn't drive all the way in the jeep. We drove to within two or three miles of it, to a place called Patara. Then from there on we had to ride horseback. Patara was at about 16,000 feet. We went over a ridge and then down. The Pashpap camp was down at about 14,000 feet. It was just a zig-zag trail. This was in the canyon of the river that runs on the Pacific side of the Cordillera Blanca (the White Cordillera, because it's snow-capped all the time.) And it's the Cordillera that contains the highest peak in Peru, Huascaran.

And also that valley formed by that river was the site of the 1970 earthquake, which was a terrible earthquake in Peru. In fact, our exploration work was stopped for two years because of it there. One town got wiped out by a mudslide. You couldn't even see where it had been. This was on the opposite side of the river from us, so we had a beautiful sight of what had happened there. You could see exactly where this loose soil just came out in a natural failure pattern and just ran down over this town. And they had no chance at all. It came down at a tremendous speed. Only those who were out of town survived.

The Pashpap camping facilities were fairly bleak. We did have a building that was just sort of sheet-metal sided and roofed, with no real heating facility or anything. It had a little kitchen in it and places to sleep. They had cots.

Chall: What were you doing there? What was being mined in Pashpap?

Swent: Homestake had developed a porphyry copper prospect up there. This means copper disseminated in small amounts as part of the original mineralization of the rock. The big center for these originally was in Arizona, where they were first found and developed. There are a number of big mines in the world now that are called porphyry

coppers. This one had a prospect of turning out to be big, open pit. It was getting far enough along that I thought I should see it. Since engineering was now my function, I wanted to have a view of it and see what plans they had as to how it would be developed.

It was still an absolutely barren prospect; there was no work done. All that had been done was just drilling of holes. I reviewed the drill hole maps before I even went up there. I didn't have to go there to see that, but I did want to see the topography and the layout, where tailings could be disposed of and this sort of thing.

It was a spectacular, very steep mountainside, one you didn't dare fall down on because you might not stop for a long ways. And of course, at very high altitude. The camp was at 14,000, but the drilling extended on up the hillside above that.

Chall: How did you anticipate ever getting the mineral down?

Swent: Well, it would have been a very major undertaking. There would have been road building and infrastructure again, all that, all the stuff that goes with developing a new mine. All these things could have been solved.

Chall: I see. It seems so inaccessible even for modern technology, but I guess it's not.

Swent: No, if the ore body's good enough, you can do all this.

Chall: It's worth it! I see.

Swent: They've done tremendous things in other mines. But you have to have the grade. This was marginal grade and eventually nothing came of it. Eventually they optioned it off to Amax and Amax looked at it for a year and decided they didn't want it. I'm not sure what happened after that. I think they sold it to somebody else.

Chall: It was a good adventure for you.

Swent: Yes. Anyway, they had cots there and we had sleeping bags and slept in sleeping bags on cots. They had a very slovenly Peruvian woman cook. We didn't really eat very much. Then the next day we drove back, rode the horses back up to Patara and then drove by jeep back down. Our plan had been to take the jeep into Trujillo and spend the night there and then fly back to Lima the next day, but Marcial Garcia, who was the Homestake geologist in charge of the project, whose jeep it was, said that he was driving back to Lima. We were coming back early enough. He said, "Why don't we

drive on through to Lima? You'll get there tonight instead of having to get there in the middle of the day tomorrow." Well, that sounded like a good idea, so we did it, but it was probably the worst mistake we ever made.

Chall: Oh, really? What happened?

Swent: Oh, it was a terrible ride in the jeep. Jeeps are all right on outside country roads but they don't have much in the way of cushioning or springs. We jounced along for hours and hours and hours. It was a much longer trip than anticipated. Lee claims to this day that her neck and hips still occasionally hurt from this, that she damaged them then and they still hurt. We ran into fog. We thought we were going to get into Lima at midnight, then we ran into this fog and we didn't get in until 3:00 in the morning. And by the time we slept in and made up for the loss of sleep and got up, we would have been there by airplane. So we didn't really save any time.

Then the next day we flew on out to Arequipa. Christine had already arrived there. She had come down from Cuzco by plane and had been met by Victor Mejia who was our agent there. He and his wife had entertained her. They had her to dinner the night before and told her that they were going to serve her a great delicacy. She asked what it was like, what it was, and they said, "Well, it's kind of like rabbit. It tastes like rabbit." This didn't really excite her very much, but it turned out to be cuys. She was really offended. The heads were still on, the eyes were still on, the little paws were still on. This is the way they serve them.

Chall: That's like serving the piglet at the table with an apple in its mouth. I guess we don't mind that, but--

Swent: Anyway, she said she had a very hard time getting it down, but she did.

Visiting a Church Near Madrigal

Swent: Then we all drove out to Madrigal. That was on a Saturday, but I wanted them to spend the weekend up there because I'd always been there on weekdays and never had any spare time. So we went out on a Saturday. On Sunday we arranged with Donaldo Rodriguez to go across the river to a town called Maca, which is sort of across the river from Lari, and see a church where he told us that there was a particularly good statue, a wood carving painted of St. Anthony holding the baby Jesus. The baby Jesus was dressed up as if he'd

been born on the Peruvian Altiplano. He had a bowler hat on and a scarf around his neck to protect him from the cold and heavy booties.

Chall: Did he look like a baby or just a little man?

Swent: Well, he looked like a little baby. We had driven back to Lari in the jeep and rented horses there and gone down the riverside and across the river on a low wooden bridge. We led the horses across on the bridge, then rode them up on the other side of the river and came out a little bit above Maca and rode down to Maca. There is an automobile road that side of the river, it comes down from Chivay, but it's no better than the road going from Chivay to Madrigal.

At any rate, when we got to Maca, this church was all closed up so we had to find the caretaker. We found him, and he was kind of drunk and there was dancing going on and exhibitions. They were having a little local festival there. Anyway, they dragged him out of these and he opened up for us. Of course, we had to pay him for this. There was no lighting in the church so all we could see by was the light that came in this open door. It was a fairly long church. We finally spotted the statue, but you really couldn't see it very well, even to take a photograph of it. You really needed a ladder because it was pretty high up on the wall. But anyway, we took some flash pictures. We were taking the flash pictures in almost utter darkness. Focusing was a real problem. Fortunately we were able to light a candle and then put it at the base of it. We used that to focus with.

Anyway, we spent quite a little time milling around. The floor had a lot of rubble on it. The church obviously was not in use, but it was being taken care of.

Chall: How were your pictures? Did they turn out?

Swent: Yes, we had some fair pictures of it. I'll show you some later.

We had a picnic lunch and then took the horses back to Lari and drove back to the camp at Madrigal. We found there that the staff had arranged a pachamanca for us out in the grove of eucalyptus trees that now were quite tall and were big enough that you could call them a little forest, or a grove anyway. So they had the pachamanca there. It was very pleasant. There were about fifty or seventy-five staff people with wives. While we had been gone during the day they'd had meat being cooked, and they uncovered it when we arrived.

Chall: How nice. I imagine you were ready.

Swent: Yes. Then Monday morning Jim Salisbury, a long-time director of Homestake who had mining experience and had some Latin American experience--he was also director of San Luis Mining Company and knew the ins and outs of Mexican politics and had worked in Colombia at one time--came for a visit. I knew this. This was why I had planned to be there at this time. He arrived on Monday and spent two days going through everything. Had an interesting visit. He was not very satisfied with the operation ever and thought Homestake shouldn't be in it. We were trying to put on the best side for him and let him see everything.

Then we all went back to Arequipa and Lima, more or less together. Paul Henshaw had come to Lima, so we saw Paul there and stayed a day in Lima. Then the night before our departure we had the head of Marubeni in Lima. I'm not sure whether he was called president of Marubeni-Peru, or just what his title was. But he was a very distinguished Japanese gentleman, who had a big party to which we were all invited. Not only us but a lot of other people. It was a very large party, and a very nice dinner. Normally the flights from Lima to San Francisco leave around midnight, so we went right from the party to the airport.

The Difficult Political Situation in Peru

Swent: All in all at this time Art Beynon was very despondent over the political things in Peru. General Velasco's administration had just gotten worse and worse. Being a military government there was no indication of when it would ever end. He [the general] was just getting more and more erratic. I don't remember all the details that Art told me, but he gave me examples of many, many things that had been done recently, particularly, that didn't make good economic sense and that were irritating many, many people and were particularly hard on the peasantry. So I said, "Well, you just have to hold on. If things are this bad there will be a coup pretty soon and somebody else will come in."

And that basically happened. Some months later General Bermudez did oust General Velasco. He was a much more moderate sort of person. Velasco had been a populist and a very leftist-type individual. We began to see some improvement in political conditions and in the treatment that we got. One thing that Bermudez did that was helpful--it wasn't immediately helpful to us, but it was a dangerous thing--was to put a maximum figure to which the comunidad's interest could rise. Under Velasco there had been no particular limit. One of the first things Bermudez did was to put a limit on that. I think from his personal convictions he

would have done away with it, but it just wasn't possible politically. We had not reached the cap anyway, but it was at least a move in the right direction.

Jack Schissler was the new manager that Henry Colen hired. He came down sometime in late 1975 and took over from Art Beynon. He was on a five-year contract. He was sixty years old and he wanted to work until he was sixty-five and then retire. He had his retirement all scheduled, what he was going to do. So I figured that was my last trip to Peru, and when I left I was rather sad in many respects. For the next few years I had little to do with Madrigal. But I would keep getting called in in San Francisco occasionally on major problems because I had the background on it.

Homestake Begins to Evaluate the Madrigal Operation, 1979

Swent: Well, the first thing I had to do when I got back to San Francisco from that 1975 trip was to write a report. Jim Salisbury had written a rather critical letter, and Paul asked me to write a report responding to his letter, so I did that. Then in 1979 some of the Homestake directors followed Jim's lead and became dissatisfied, so they decided to have Dick Stoehr go down. Dick had never been involved in it at all and they wanted somebody else's look rather than the vested-interest person's look. So they asked Dick to go down, look it over and assess it. He did a good job. He came back and laid out what the options were, and he recommended that Homestake stay with it.

Now one thing that made this recommendation more palatable was that by then Homestake had recovered its investment. Finally, in 1978 they had a good year, a recovery. Peru had a good year with respect to foreign reserves and we were allowed to pay out quite a bit of money. It included Homestake's recovery of its investment.

Somewhere along the line, and I'm not quite sure when, probably 1980, we had several days' discussions with Alberto Benavidez, who had been a geologist with Cerro de Pasco back in the 1940s. He knew Dr. McLaughlin, had eventually left Cerro de Pasco and had gone into work on his own, acquired mines and now had become quite wealthy. He was a quite wealthy Peruvian and owned a series of silver mines in the company that he called Buena Ventura, or Good Venture. He came up to San Francisco with several people.

Before this, of course, Harry Conger had become president. Paul Henshaw had retired and Schissler was still running Madrigal. His five years hadn't expired.

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Then they made Ted Rizzi the chief exploration geologist down there, actually at Paul's suggestion. First they sent him to Tayoltita to see the vein structure and the magnitude of the ore bodies that occurred on it, even though it was a narrow vein system, then on down to Peru to study the Madrigal area and see what the potential was there. He also visited other mining camps and became generally acquainted with mining, particularly small-vein mining in Peru, which was what Paul had recommended that he do. In the process he visited these silver mines of Alberto Benavidez's.

Anyway, at some point, and I can't pinpoint the date, but it had to have been later than '79, they came up with a proposition of trying to put Madrigal and Buena Ventura together into a venture in which we would each hold some interest. But when Dick came back with his report he had recommended that we hold the property and keep going the way it was. The board had read his report, and at first we heard of no particular action. Finally it did come out that they had approved the report and decided that was the way to go.

So, although we had the discussions with Benavidez they weren't of interest enough to come to anything. His mines were quite well worked out. One of the reasons he was really looking for a partner was to pick up something that was producing better than he was.

Then Ballon got wind of this, and he voiced an interest in buying Madrigal. He had heard that Benavidez was up there talking to us. He called me and wanted to know what was going on, so I told him. I said that there had been an element in Homestake that wanted to get rid of Madrigal and he said, "Well, if you want to sell it, I'll be glad to buy it." But the basis on which he wanted to buy it was to pay for it out of future production. Homestake didn't want to really sell anything on that basis.

In 1981, I think, Jack Schissler retired. At that point Harry Conger was president. Harry and Henry Colen had not gotten along too well anyway, and Harry had done away with the divisional organization that the management consultants had set up for Paul. He went back to a functional-type organization. The divisional organization had led to an extreme duplication of many functions. Overhead was quite high and Harry set about to reduce that. He did it very well.

Chall: Where did that put you?

Swent: Well, I was still in the vice president of engineering job. That didn't change.

The Change in Management, 1981

Swent: When Schissler retired, Harry asked Art Beynon to return to Peru for three months and assess the situation and then come back to the U.S. and give him a proposal on it as to what should be done. So what Art did was he went down in '81 and stayed there for several months. Then he came back and wrote up a report on the status of the property and indicated that he would be willing to run it from San Francisco and visit it periodically. And he had lots of other conditions that they would have in order to do this. Since there would be no general manager on the spot, certain legal powers would have to be given out to the people that were still in Peru. This was all arranged, so Art Beynon was really running it again from San Francisco. Henry Colen eventually resigned. I'm not quite sure when he left Homestake, but it was somewhere along this period, so he was not available to run it. He and Harry did not get along well together anyway.

Chall: Goodness, there were quite a number of people that didn't seem to get along with Mr. Colen.

Swent: Henry went out and started a little consulting firm in the Russ Building. Now it's moved up to Marin County and is made up more and more of ex-Homestake employees. We went to visit them for their fortieth wedding anniversary recently. They had a big party, and I saw lots of ex-Homestake employees there that I hadn't seen for several years.

Henry is involved in some gold explorations in Nevada and some gold explorations down in the Palau Islands in the Pacific. He is a very energetic, imaginative person. He has a mining engineering training but has specialized more in geological work. His forte is imagining where ore bodies can be and finding them. His forte is not developing or running things. He tries to inspire people and motivate people and he has a very motivational side to him. If things don't pan out, then people feel let down, if they don't turn out the way Henry has said they might. And he doesn't worry too much about where money comes from, that is, for financing and that sort of thing.

Additional Exploration Around Madrigal

Swent: Anyway, in January of '81 I made another trip down while Art was there. I hadn't been down for a number of years. I concentrated on the potential of the outlying veins in Madrigal, to see what we should be doing, what the program was to develop these, if there was anything to be developed or to explore them. We looked over a vein called the Posco Huayco and another one called the Sahuito.

One of the high costs that the property sustained was that of electric power. This diesel electric power was really quite expensive as electric power goes, and Art wanted to push eventually going to a hydroelectric plant. He had located a stream with a waterfall that the rights were open on. It was a tributary to the Colca River and it was on the same side of the river as Madrigal, but there were tremendous cliffs and mountains in the way to go down from that side. So we drove around, up to Chivay and then back down the other side, through Maca and down to a town called Cabanaconde, then hiked down the canyon side until we could get a view up the side canyon across the river and could see this waterfall.

It was unquestionably a marvelous power site, hydroelectric site, that could be developed. But it would take a big capital investment and really was something that a utility or the government should have been doing. The government had no money for it and they did not have any utility companies in Peru, so it had to be done by a private enterprise, recovering the money through sales. The Madrigal people had lots of talks with the Ministry of Mines and Energy about this, but they couldn't come up with any really satisfactory thing that they could recommend to the company. But it was a marvelous site anyway.

Then Art and I drove back to Arequipa. At this time there was a big flap going on between Peru and Ecuador over some incidents on their border. They were almost ready to declare war on each other. There were troop movements. Fawcett Airlines, which ran the internal domestic services of most of the Peruvian airlines, as a gesture to the military government had offered to make all of its planes available to them. All that they used these planes for was to go up and reconnoiter and see what was going on. But every general in the Peruvian army wanted to go up and see what was going on. So all these Fawcett planes got commandeered under this offer.

We got back to Arequipa and our flight was canceled. We waited in line for an hour. At first they didn't say it was canceled; they said it was delayed. After we waited in line for several hours it was canceled until the next day. We went out the

next day and had the same experience. So Art and I decided that there might not be any end to this, very soon anyway. We decided to hire a colectivo and drive from Arequipa to Lima, which is a long drive. That's about a twenty-hour drive. There was some girl who was standing in line and she heard us discussing this and she asked if she could go with us. So we took her along, figured she could pay a third of it and would be helpful.

So we took off late in the afternoon and drove all night and got into Lima the next morning around 10:00 or 11:00. We delivered this girl to her hotel and then went on to ours.

There was a new Sheraton in town. Previously I had always just stayed in an older hotel called the Bolivar, which had a good old Hispanic atmosphere. In the meantime, in the years I had been gone Sheraton had built a new hotel, so Art and I stayed there. He had given up his apartment.

Then I tried to make arrangements to fly out the next day. This was on an international airline. I forget what it was; I guess it was Braniff. I was to fly to Miami, but their flight was canceled. So I waited another day. Finally on the second day I did get out, and flew to Miami.

The reason I was going to Miami was that this was the time of year when the American Mining Congress has its annual meeting in Washington, which I normally attend. So I flew directly from Miami up to Washington and got there just in time for that meeting. I had intended to go up and visit our son living in Charleston, South Carolina. Our older son was a doctor and he was doing his residency at the University of South Carolina medical school in Charleston. But I had to postpone that and did it after the Mining Congress meeting instead of before, and then flew back to San Francisco.

The Final Trip: Business and Pleasure, 1982

Safety Factor in the Mine

Swent: We made one more trip down in '82. That was the trip when I took Harold Barnes with me. He was the corporate safety director, and I had him review the operations there and their safety records and their record-keeping systems and see if he had any recommendations. When he was through we had a big meeting in one of the staff dining

rooms. One of the engineers, a fellow named Cruz--he had been there for years, I had known him for years, one of the very early employees there--got up and made a very nice little speech. He said he'd been there now for these many years and that this was the first time that the head office had seen fit to send down a safety expert, and that they were very happy for this and appreciated the consideration that the company had for their welfare.

Chall: How had the safety been in that mine?

Swent: It was fair. But the problem we had had was in getting reliable reporting. They had one terrible accident where they were repairing a ball mill. Ball mills and rod mills have to be relined every once in a while. Their linings wear out. So they have a removable liner of cast iron or cast manganese steel or something that's hard wearing to take the wear of the balls and ore rolling around in it. About once a year they have to be relined, and this one was being relined.

To do it they usually have a manhole and a person can crawl through this manhole and get inside. Then you unbolt these liners piece by piece and pass them out through the manhole. Then they pass a replacement one in. It's a very heavy job and it's awfully hot inside of these things. Of course, the load stays there inside. The load is on the bottom and you work on top of these balls and stuff. You have to rotate the mill a little bit every once in a while, but of course you do this when there's nobody inside of it. Well, something went wrong and they started this up and a fellow was still inside and he just got ground into pieces.

Chall: Oh, that's terrible.

Swent: Yes.

Chall: Why did it take so many years before the company sent somebody down to look?

Swent: Well, this was the first corporate director of safety we'd had.

Chall: Oh, I see.

Swent: When I hired him, up until then we'd had no corporate director of safety. Each operation was responsible for its own safety. Actually, in this respect Homestake had grown very poorly. That's part of the Homestake structure that we'll go into later.

I learned about another type of safety factor at Madrigal while I was on this trip. Donaldo Rodriguez, who was the superintendent at the mine, told me that the security forces had

found within the camp and arrested and turned over to the Lima police a man and a woman who were members of the Sendero Luminoso [Shining Path].

There were no restrictions on people entering the area. They weren't really Indians but they had assumed Indian garb. They had all sorts of explosives hidden on their bodies and had attempted to just strike up acquaintance and live with the people that were living in our area. They were immediately recognized as really strangers and not employees or related to employees. So the security officers heard about them and looked them up and arrested them. One of them, the woman, had a Ph.D. in some subject. I'm not sure what the man had, what his education was. The security people had pictures of them and were very proud of having apprehended them without any violence taking place.

Management Problems Again

Swent: By this time Harry Conger had hired a vice president of operations. He had hired a manager that had come recommended to him, who had Latin American experience, who was a Mexican named Ramon Rincon.

Chall: Does that mean manager for Madrigal?

Swent: Yes. He had had quite a bit of experience in vein mines of Mexico and in the U.S. and he spoke English. A rather strange-looking fellow, kind of wild-eyed and -haired. But he'd been sent down to be manager. Art was out of it. Rincon was working directly for Bill Humphrey, the vice president of operations. Bill Humphrey had come from Newmont, where he had been vice president of operations, so he knew mining. And he'd done a lot of work in Mexico himself and he knew Spanish. So Rincon was answering directly to Bill Humphrey. But Art kept getting letters and pleas from his four henchmen down there that this fellow was just terrible, so he passed these complaints along to Bill Humphrey.

So when Humphrey heard that I was going down anyway he asked me to check on this. While I had been in Lima I did some checking on Rincon. I had taken Harold Barnes with me, and Harold went out to lunch while I was on a phone call. When they went out to lunch I was supposed to join them, but by the time I got through it was so long after they'd left I decided not to. So I talked with Andujar, who was in the office, and I talked with Rodriguez, who happened to be around, and with Ascorra. I learned the story, and they showed me some of the stuff that Rincon had written. They

said he just had no appreciation of working with a Peruvian organization. He was raising Cain with everybody's morale.

Then what happened was that at the lunchtime we found out he's really alcoholic. Barnes and Rincon didn't come back; they didn't come back all afternoon. If I'd gone I would have lost the afternoon. So I called Bill Humphrey and told him. He was considering, really almost on the verge of firing him, and he just wanted confirmation. So I confirmed it and when Rincon came back in, finally, he had a message to call Bill Humphrey, and he did. And Humphrey fired him on the spot and that was the end of it. I never saw him again. Anyway, that was one of the missions I had in '82.

The Exciting Vacation

Swent: At any rate, that was my last visit to Madrigal. This was also part of a big vacation trip that I'd planned. We had four other friends that went with us and went out to Madrigal. Again, we planned it so that we were there over a weekend. This time we drove in a van up to Chivay and back down to Maca and roused the drunken church attendant again [laughter] and went in and photographed that statue.

Chall: Again by candlelight?

Swent: Yes. It was still as difficult a job; it's still one that I'd like to do better. I'd like to get up, get a ladder, so that I could get opposite the baby Jesus because it's a huge statue. It's probably ten feet high and it's up in the air up on the wall anyway. St. Anthony is holding Jesus in his arms, so Jesus is way up at the top of the statue. So when you shoot from the floor if you get across the church and shoot it, it looks awfully small, even with a telephoto lens, and you're looking up at best and not getting a head-on view. We had a picnic lunch out there, all of us, and then on Monday Harold went back to Lima.

We went on over to Puno and up to Cuzco by train from Puno. Then we went to Macchu Picchu and spent the night there, six of us. Something terrible happened to me. I never knew what it was. Macchu Picchu is lower than Cuzco and Cuzco is lower than Puno and Puno is about the same as Madrigal, so I should have been used to the altitude by then. I don't think it was altitude sickness. I didn't have a headache, which is the usual form of altitude sickness, but I suddenly just lost all energy while at Macchu Picchu. I just didn't feel like doing anything. I felt so bad I

went to bed, and I was listless, but I didn't have any other symptoms. They called the hotel doctor and he took my blood pressure and it was very, very low. So he just said, "Well, I don't know what it is." But I recited my previous ailments and everything, and he said, "Well, just take it easy and wait for the blood pressure to come back. Take it periodically." And he checked on me two or three times.

The next morning the blood pressure was back up and by noon I was feeling fine. One of the things that had disappointed me greatly was that I had wanted to climb, while we were there, a little peak that overlooks Macchu Picchu called the Huayna Picchu. Everybody that was staying there was doing it. The Derns, our guests, had already done it. I had not done it. So in the afternoon I felt like tackling it, but carefully. Lee insisted on going with me and going ahead of me so that I wouldn't go too fast. We did go. And in order to lighten up for it I didn't take the movie camera, and this is one of the things I regret to this day. But I did take the still and we did climb the peak slowly and got up there.

It's a very interesting climb. It's old Inca stuff. There's a good trail for part of the way, and then you have to go up some very steep steps that have a sort of a rope railing to pull yourself up on. You go through a little--

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But the elevation and the sharpness of the peak there is such that Lee got very scared and wanted to get off quickly. I didn't have as much time to enjoy it as I would have liked to have had.

Chall: Had she gone on it the day before, too?

Swent: No. So it was her first time. But she got panicky up there and said, "We have to get off, we have to get down, we have to get down."

Chall: Was there a wind that also could make you feel uneasy?

Swent: No, there wasn't a particular wind, just the height and the fact that it was so steep you seemed to have nothing below you.

Chall: Yes. I can feel for her!

The Galapagos Islands

Swent: I was glad I got to do it, to have recovered enough to do it, and from then on I had no more trouble on the trip. We went back to Lima, and then flew up to Quito, the group of us. We were joined in Quito by two other people, friends of the Wolfes. The friends that we were with were the John Derns and the Richard Wolfes. They were joined there by some friends of the Wolfes and we did some touring around Quito for two or three days. Then we were joined by a tour guide. We had arranged to rent a boat in the Galapagos Islands through a travel agency in Palo Alto. They had sent a tour guide named Hilton who had never been there before and didn't know Spanish. He met us at the airport, and we had to do all the arranging because we spoke Spanish.

The name of the other friends in the party were the Wills. Then the Derns had their daughter Martha along, and we had our daughter Jeannette along, so it was ten passengers. We took the train down to Guayaquil, on the coast. It's a spectacular ride down. We stayed overnight and then flew from Guayaquil to the island of Baltra in the Galapagos. There we were met by our Ecuadorian guide.

The Galapagos are an Ecuadorian national park. You can only visit them under the auspices of a trained and licensed Ecuadorian guide. Well, this guide was British, actually, from Southampton, England, named Mark Jones. He was excellent. We thought he was marvelous. Anyway, he took us down to the boat, which was nearby, and we got in and camped on this boat called the Encantada. Their standard trip was two weeks. It was a big sailing boat but it had a diesel engine. Generally they used the engine all the time and the sail just to help get a little additional speed. Had a three-man crew, including the cook. We had a very marvelous time, had a marvelous time for two weeks.

The way we got into it originally was that the Derns--he is a classmate of mine from Stanford--and we had tried to get in on a Stanford tour of the Galapagos that summer and had not gotten signed up in time, so we looked for an alternate. The Stanford tour was only a one-week tour and this was two weeks. It turned out much, much better, I thought, than the Stanford tour because of the services of Mark Jones.

Chall: Could you get onto the islands and walk around?

Swent: Oh yes, yes. What we would do is cruise from one island to another at night, then anchor and take a rubber raft in to shore, then walk

around, sometimes for hours. It was a very, very interesting trip. We did it at just the right time.

One of the features of it is that the Galapagos are right on the equator and on the Humboldt current, a cold current that flows north off the Peruvian coast and really is the reason why the Atacama desert and the southern Peruvian desert exist, because it does the same thing as our Japanese current does off of California. It's a cold current, and the warm moisture-laden air comes in from the west, passes over this current, and condenses into fog. Then there's no moisture left to go on into the mainland, so the mainland is quite arid. Well, the current flows up the west coast of South America to where it turns out at Ecuador. It turns out into the Pacific and juts out, and moves along the equator. Six hundred miles out it hits the Galapagos Islands and keeps the climate there very temperate.

The islands are entirely volcanic in origin, just like the Hawaiian Islands. But being so far from any mainland, they've developed their own variations of various species of animal and wild life. This is why it's an excellent place to study. This is where Charles Darwin really got the idea for his evolution of species, the idea of evolution. Since it's a place that's so little inhabited, all this wild life is absolutely unafraid of human life. You can walk right up and almost pet the birds. They don't regard man as an enemy because for hundreds of years while they've been generating this hasn't been a danger that they've had to pay any attention to. Anyway, it was a marvelous experience.

Then after two weeks of cruising around, we got back to Baltra and flew back to Quito and spent a day in Quito just sort of recovering. Then flew back to Miami and back up to San Francisco.

Homestake Sells the Madrigal Operation, 1983

Swent: Somewhere after I retired--and I'm not quite sure when, they finally did sell--Homestake finally did pull out of Madrigal. I'm not quite sure what the arrangement was because I wasn't involved in it, but it got turned over to one of the other limited partners to run. It was St. Joseph Lead, who had other South American operations. They held it for a while and finally sold it in some fashion to David Ballon. So David Ballon finally got hold of it. He wanted it very badly for years. But of course he got something that had been pretty well mined out, too. I understand he shut it down. I don't know if he ever started it up again or not.

When I heard that this was being done, I went to Harry Conger and told him that I thought the four stalwarts down there, Andujar, Rodriguez, Ascorra, and Mejilla, should get some special consideration in their retirement. There was never a retirement program set up for Madrigal employees.

It hadn't been long-lived enough to do it. But I thought these people deserved something for their loyalty and efforts, extraordinary efforts over the years and extraordinary loyalty. Harry agreed to see that they had some extra compensation when it was turned over to St. Joe. They all got it, because I got letters from them, thanking me for interceding. I don't know how much it was, whether it was enough or not, but they did get something.

I heard, and I haven't really found out why, but Victor Mejilla apparently committed suicide sometime after these transactions. That's very unfortunate. The others I still get Christmas cards from. In fact, Rodriguez has visited up here and spent a week with us when they were sightseeing in San Francisco one year, '82 or '83, I've forgotten just when.

So that's about the end of the Madrigal story.

Reviewing Some Special Aspects of Madrigal

Chall: Yes. It surely gave you not only an interesting mining experience but an opportunity for traveling throughout South America and Australia.

Swent: I'm glad you mentioned the mining part of it. I really should review a little of that. The original mine was set up, as I said, with the haulage level on the seven level. The vein we knew continued below the seven level, but the topography was such that it was very difficult to develop, say, an eight level. There was no place except to sink in from the interior. And sinking in Latin America is very difficult and expensive--anyway, something not to be tackled lightly.

We could drive in a twelve-level, which was just at the mill site level, right at the ore bin level, and we decided we would take a long shot and drive that in. Art started that. But it was a long drive and would take a lot of funds. As metal prices got worse, he got halfway in and found extensions of some other veinlets, but hadn't quite reached the main vein yet when we had to shut it down. Then it stayed shut down for a while.

I think Schissler eventually started it up again and completed the drive. It was helpful. He did find the vein and some ore. Then he started cutting down. He introduced the idea of using what we call trackless mining and drove a decline down from the surface, just below the seven level. He started a new portal, because when you use the trackless equipment you need a bigger opening. The equipment is bigger and it won't go through the small headings.

The trackless equipment that he used consisted of trucks and what we now call jumbos, which are several drills mounted on pneumatic controls, pneumatic levers, that project the drill out in front. You can run three, four, five drills off of a jumbo, depending on the size you want to buy. He bought some new jumbos and drove these declines down. It's much easier to drive a decline, to drive downward with the trackless equipment than it is with conventional equipment. You use front-end loaders for the loading.

At any rate, he drove a decline down and zig-zagged down to the eight level and then to the nine and to the ten, I think. I'm not sure whether he ever made the connections to the eleven and twelve. But anyway, he developed a great deal of ore below the seven level, which they immediately started mining on. Because the reserves above the seven level were almost totally mined out, this had been one of the reasons for the pessimism about the property, that its reserves were running down and we'd not put any money into developing new reserves.

This is one thing that we'd done very successfully at Tayoltita. That mine ran year in and year out. Of course there was never too much question about where you could go for new reserves. Every year they developed as many reserves as they mined out, and they always ran with five years of reserves on hand. But Madrigal got down to where it had less than a year of reserves at one point.

Chall: It wasn't as rich anymore?

Swent: Well, the development work with new reserves doesn't pay you any money. It's an expense, and if your income isn't good enough, you just can't afford it. Sometimes you have to take a loss to do the development work. But anyway, that lengthened the mine's life quite a little bit. I'm not sure that it's ever been mined down to the twelve. I don't know what the geology was when they developed on the twelve level. But they eventually were able to connect it through and do away with the aerial tramway and just haul the ore out directly on the twelve.

Comparison with Tayoltita

Swent: This is a very similar parallel to Tayoltita, where in the late 1970s or early 1980s, they finally drove in the twenty-six level. When I was there we drove in the fifteen level as the bottom haulage level, and then we sank down interior a couple of levels from the fifteen. But they decided to haul off and drive from surface, and it was a long, long drive, because the mountainside tapers outward and they had a lot of waste to haul out. [looking through papers]

Well, that was 1974, shortly after Oscar Ballon was here, that I went to Mazatlan and Tayoltita on a vacation trip. I was on the board of directors of the Banco Occidental de Mexico, which is a Mazatlan bank, and I went down for their annual meeting, and then went out to Tayoltita and saw the tunnel in progress. Then a year or two later I went out and saw the tunnel job completed.

They had found a vein they were beginning to raise upward to the--but they had a 900-foot raise to drive, which was very, very hot inside. It was extremely hot. It had insufficient ventilation and the drive had been so long the rock temperature--I don't know what it was and I don't think they wanted to know. The working conditions were absolutely abysmal. But eventually it's all holed through. That mine now has done away with the aerial tramway and hauls the ore out at the mill level. There's still potential to go lower.

Chall: Well, that was a good mine.

Swent: Yes. And the parallel between the two mines is very great. That's why I felt so attached to Madrigal, because it reminded me so much of Tayoltita in its problems.

That was one of the problems I probably had with Madrigal, that I became emotionally attached to it. Art Beynon was emotionally attached to it, too. This was generally recognized at Homestake.

Chall: I see. That's why they sent Stoehr down.

Swent: Yes.

Chall: He apparently thought it was all right.

Swent: Yes, he gave it a good recommendation.

Why don't we leave it at that, and then we can plan the clean-up session.

XI LANGAN SWENT REVIEWS HIS CAREER WITH THE HOMESTAKE MINING COMPANY

The Company Presidents

[Date of Interview: August 12, 1988] ##

Chall: Well, today I thought we would recapitulate somewhat, and find out more about the Homestake company itself. I wanted to get a brief sketch of each president you have known, and let's start with their professional backgrounds. Where did they come from?

Swent: Well, overall, Homestake has had nine presidents since they began. I've known all of the last six. Now, we have to make one distinction here: the present president is David Fagin, but he's not chief executive officer. Harry Conger is chairman of the board and chief executive officer at this time. I'm including Fagin as one of the nine presidents.

Chall: I've never really quite known what the difference was between president, CEO, and chairman of the board--in your terms--

Swent: Well, the chief executive officer is the person that actively runs the company and makes the final decisions. Chairman of the board, if he is not the chief executive officer, simply presides at the board meetings.

Chall: Yes. Well, in your terms, prior to this kind of breakdown, were the presidents the CEOs?

Swent: Yes.

Chall: So it's only been recently that they've evolved--

Swent: They generally, in the last few years, the last few changes, had an overlap period where the new president gets the title of president, but he's not the chief executive officer for maybe a year or two. And then they shift the title of chief executive officer to the new president.

Chall: So this has really been a change then in management?

Edward H. Clark, 1914-1943

Swent: Yes. The first president that I knew I didn't work for. That was Edward H. Clark. He was a very upright, very gentlemanly, courteous man. I knew him socially, and my dad worked for him for years, but I did not work for either San Luis Mining Company or Homestake at that time.

He was a cousin of Phoebe Hearst. When George Hearst died in 1891, she inherited most of the estate. He left a certain amount to William Randolph, and the rest was in her name. She had the bulk of it. She had all the Homestake interest, and she really dedicated herself, I guess, to following her interest. She did an awful lot of philanthropic work in Lead, a tremendous amount up there. But she wanted someone on the board.

Now, George Hearst himself had never been on the board. He always stayed off the board. He was never a director, never an officer, although he had the largest holding of anybody of the original three investors, Hearst, Haggin, and Tevis.

Chall: Did he have some other kind of influence?

Swent: Well, he controlled the company, in essence, because he was the biggest stockholder, but he exerted his influence through other people.

So anyway, in 1894 Mrs. Hearst asked her cousin, Edward H. Clark, to become a director of Homestake to represent the Hearst interest. He was a financial person from New York, and had no particular mining background or technical background. And then, of course, in those days Kern County Land Company, Homestake Mining Company, and San Luis Mining Company all shared the same offices and had sort of an arrangement. They used the same employees who just charged their time to each company as they did their work, I guess. Clark headed up all three enterprises. In fact, he also headed up Cerro de Pasco; he was president of Cerro de Pasco, which was based in New York. That had been at one time a Hearst, Haggin,

From the Homestake Mining Annual Report, December 31, 1931

REPORT OF GENERAL MANAGER

Lead, South Dakota, December 31st, 1931.

Mr. Edward H. Clark,
President, Homestake Mining Company,
San Francisco, California.

Dear Sir:

At the end of the fifty-fourth year of its corporate life, the Homestake Mining Company continues active production of gold from its mines. The ore blocked out insures continuous operation for ten years at the present rate of milling.

The year 1931 brought no unusual problems and the mine and treatment plants have operated continuously.

Following is a condensed report of the Mine Engineer:

Development Drifts driven 16,858 feet.
Development Raises driven 7,673 feet.

There are 672,630 tons of ore broken down and remaining in the stopes.

There are 15,116,178 tons of ore blocked out and remaining in the mine.

Additions to plants and equipment:

A new electrically operated hoist is now being installed at the Ellison Shaft to replace the steam hoist.

A 5,000 K.W. Steam Turbine has been installed in the present steam auxilliary plant at Lead. This unit will be ready to operate early in January, 1932.

Automatic sprinkler installations were completed in Cyanide No. 1 Plant and the Slime Plant.

Yours respectfully,

B. C. YATES,
General Manager.

Homestake Mining Company

BOARD OF DIRECTORS

ALLAN McCULLOH	New York
EDWARD H. CLARK	San Francisco, Cal.
FRED T. ELSEY	San Francisco, Cal.
RICHARD A. CLARK	San Francisco, Cal.
WILLIAM W. MURRAY	San Francisco, Cal.
WILLIAM LETSON	San Francisco, Cal.
CHARLES B. GREELEY	San Francisco, Cal.

EXECUTIVE OFFICERS

EDWARD H. CLARK, President	San Francisco, Cal.
FRED T. ELSEY, Vice-President	San Francisco, Cal.
RICHARD A. CLARK, Secretary	San Francisco, Cal.
ALLAN McCULLOH, Treasurer	New York

OPERATING STAFF

LEAD, SOUTH DAKOTA

B. C. YATES
GENERAL MANAGER

ALLAN J. CLARK
METALLURGIST

CHAMBERS KELLAR
CHIEF COUNSEL

R. B. FLEEGER
CHIEF SURGEON

A. J. M. ROSS
MINE SUPERINTENDENT

J. D. JOHNSON
CHIEF ENGINEER

SIDNEY J. STAPLE
MASTER MECHANIC

J. F. WIGGERT
CHIEF ELECTRICAL ENGINEER

D. H. McLAUGHLIN
CONSULTING GEOLOGIST

TRANSFER AGENT
IRVING TRUST COMPANY
1 WALL STREET, NEW YORK

MAIN OFFICE OF COMPANY
485 CALIFORNIA STREET ROOM 910
SAN FRANCISCO, CAL.

Annual Meeting—Third Tuesday in March

STATEMENT OF ASSETS AND LIABILITIES

DECEMBER 31, 1931

ASSETS.

Properties and Plants, Less Depletion and Depreciation		$ 9,079,136.76
Cash in Bank		1,804,077.41
Bullion in Transit		367,398.75
U. S. Gov't, State, Municipal & Corporation Bonds ($5,971,000.00 Par Value)		6,039,178.91
Other Securities		3,000.00
Accounts Receivable		15,830.22
General Supplies, as per Inventory		610,247.59
Total Assets		$17,918,869.64
Balance at Debit of Profit and Loss Account		768,719.28
		$18,687,588.92

LIABILITIES.

Capital Stock—		
251,160 Shares $100.00 Par Value	$25,116,000.00	
*Less Dividends Paid from Depletion Reserve	7,039,528.96	$18,076,471.04
Outstanding Drafts		295,391.34
Accounts Payable		311,260.31
Unclaimed Dividends		4,466.23
		$18,687,588.92

*Corrected to give effect to Depreciation and Depletion deductions as finally allowed for Federal Income Tax purposes by the United States Treasury Department.

STATEMENT OF OPERATIONS

FOR THE YEAR ENDING DECEMBER 31, 1931

OPERATING REVENUE:			
Bullion—			
Proceeds of bars 7768-8090		$8,935,307.15	
During the year 1,403,939 tons of ore were milled, realizing an average of $6.36446 per ton.			
Golden Gate Timber Operation		8,187.05	
Wyodak Coal Operation		36,242.89	
Interest and Rents		225,988.61	$9,205,725.70
OPERATING EXPENSES:			
Mining, Hoisting and Primary Crushing		$3,119,209.30	
Tramming		33,124.89	
Milling		803,566.87	
Express on Bullion		9,995.84	
Employees' Welfare—			
Hospital	$61,395.32		
Workmen's Disability Compensation	26,474.95		
Aid Fund	2,603.10		
Benefices	7,265.00		
Pensions	31,239.13		
Recreation Hall	19,764.35	148,741.85	
Taxes		639,988.53	
Insurance		22,066.48	
Salaries, Office, Legal and General Expenses		199,390.94	
Loss Ellison Hoist Fire		18,423.87	
Outside Explorations; Abandonments & Investigation Expenses		17,236.53	5,011,745.10
Income			$4,193,980.60
Charges Against Income:			
Reserved for Depreciation and Depletion			1,757,381.25
Net Income			$2,436,599.35
DIVIDENDS FOR THE YEAR:			
Dividends (All Paid From Earnings of Year 1931)			$2,122,302.00

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From the Homestake Mining Annual Report, December 31, 1987

ard of Directors

ladley Case
hairman of the Board and
hief Executive Officer
ase, Pomeroy & Company, Inc.

obert H. Clark, Jr.
esident
ase, Pomeroy & Company, Inc.

arry M. Conger
hairman of the Board and
hief Executive Officer
omestake Mining Company

avid K. Fagin
esident and
hief Operating Officer
omestake Mining Company

ouglas W. Fuerstenau
ofessor
partment of Materials Science
d Mineral Engineering
iversity of California, Berkeley

lliam A. Humphrey
ecutive Vice President
mestake Mining Company

bert K. Jaedicke
an
aduate School of Business
nford University

llace Macgregor
ependent Metals and
nerals Advisor

nard Marks Jr.
mer Executive Vice President
tle & Cooke, Inc.

rt T. Peeler
irman of the Board and
ef Executive Officer
ex Petroleum, Inc.

n L. Ryland
ident
CO, Inc.

ne A. Schepman
ident
ir Company

rles T. Undlin
ident
west Bank Nebraska, N.A.

n Walker
cutive Vice President
nestake Mining Company,
rman of the Board and
dent
ont Oil Corporation

r of Audit Committee

Officers

Harry M. Conger
Chairman of the Board and
Chief Executive Officer

David K. Fagin
President and
Chief Operating Officer

William A. Humphrey
Executive Vice President

Lynn Walker
Executive Vice President,
Oil and Gas

Robert R. Beebe
Vice President,
Project Development

Lee A. Graber
Vice President,
Corporate Development

Rex Guinivere
Vice President,
Engineering

Richard R. Hinkel
Vice President,
Human Resources

Richard A. Holway
Vice President,
Marketing

William G. Langston
Vice President,
General Counsel and
Assistant Secretary

Robert A. Reveles
Vice President,
Government Affairs

Richard W. Stumbo, Jr.
Vice President,
Finance and
Chief Financial Officer

Allen S. Winters
Vice President,
Mine Operations

Robert L. Watson
Controller

Jonathan J. Williams
Treasurer and Secretary

Vincent A. Schioppo
Assistant Treasurer and
Assistant Secretary

Richard J. Stoehr
Senior Consultant to
Chairman of the Board and
Chief Executive Officer

Director and Officer Changes

Charles R. Thurman retired as Assistant Secretary and Assistant Treasurer on April 30, 1987.

Maurice C. Stokes, formerly Treasurer and Secretary, was promoted to Vice President, Finance and Administration, of Felmont Oil Corporation on May 11, 1987.

Vincent A. Schioppo, formerly Treasurer, Felmont Oil Corporation, was elected Assistant Treasurer and Assistant Secretary on May 12, 1987.

Robert L. Watson, formerly Assistant Controller, was elected Controller on May 12, 1987.

Jonathan J. Williams, formerly Controller, was elected Treasurer and Secretary on May 12, 1987.

James A. Anderson resigned as a director and officer of the Company on July 15, 1987.

Allen S. Winters, formerly General Manager, Homestake Mine, was elected Vice President, Mine Operations on November 20, 1987.

Kenneth S. Canfield retired as Vice President, Commercial on January 31, 1988.

Richard A. Holway, formerly General Manager, Sales was elected Vice President, Marketing effective February 1, 1988.

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Mining Operations

Homestake Mine
Lead, South Dakota

Gary A. Loving
General Manager

Ralph J. Tibble
Assistant General Manager
Administration and Engineering

McLaughlin Mine
Lower Lake, California

Jack E. Thompson, Jr.
General Manager

Bulldog Mine
Creede, Colorado

Thomas M. Robertson
General Manager

Grants Operations
Grants, New Mexico

Thomas G. White
General Manager

Homestake Gold of Australia Limited

John B. Roberts
Managing Director

Mineral Exploration

Jeffrey T. Abbott
Vice President and
Managing Director
Homestake International
Minerals Ltd.
Vancouver, BC, Canada

Robert T. Boyd
Director
Canadian Exploration
Vancouver, BC, Canada

Ralph E. Green
Director
U.S. Exploration

Oil and Gas

Felmont Oil Corporation

Headquarters
Houston, Texas

Lynn Walker
Chairman of the Board and
President

William J. Gedwed
Vice President,
Marketing

Leroy L. Manka
Vice President,
Exploration

Richard A. Mills
Vice President,
Special Projects

Maurice C. Stokes
Vice President,
Finance and Administration

Edward J. Vandermark
Vice President,
Legal, Land and Secretary

Corporate Office

Homestake Mining Company
650 California Street
San Francisco, California
94108-2788
Telephone (415) 981-8150

Transfer Agent and Registrar

Bank of America NT & SA
Corporate Agency Service Center
P.O. Box 37002
San Francisco, California
94137
Telephone (415) 624-4100

Exchange Listings

The Company's common stock is listed on the New York Stock Exchange; the Stock Exchange, London; the Frankfurt Stock Exchange; the Paris Bourse; and on the Basel, Geneva and Zurich stock exchanges in Switzerland.

Annual Meeting of Shareholders

A proxy statement will be mailed to each shareholder in March. The annual shareholders' meeting will be held at 11 A.M. on Tuesday, May 10, 1988 in the Penthouse Board Room of Wells Fargo Bank, N.A., 420 Montgomery Street, San Francisco, California.

Form 10-K

A copy of the Form 10-K Report filed with the Securities and Exchange Commission may be obtained without charge by writing to the Secretary, Homestake Mining Company, 650 California Street, San Francisco, California 94108-2788.

Shareholder Rights Plan

A copy of the plan may be obtained without charge by writing to the Secretary, Homestake Mining Company, 650 California Street, San Francisco, California 94108-2788.

Dividend Reinvestment Plan

Those shareholders interested in Homestake's Dividend Reinvestment Plan should contact the Transfer Agent.

Major Subsidiaries

Felmont Oil Corporation
Homestake Mining Company of California
Homestake Gold of Australia Limited
Homestake International Minerals Ltd.
Homestake Lead Company of Missouri
Homestake Mineral Development Company
Homestake Nevada Corporation

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For the years ended December 31, 1987, 1986 and 1985
(In thousands, except per share amounts)

	1987	1986	1985
Revenues:			
Product sales	$305,614	$311,873	$297,727
Share of earnings—Mining Venture Partnerships	38,773	18,980	11,259
Gain on sale of minority interest	146,336		
Interest and dividends	13,303	6,745	8,298
Other income—net	12,200	10,066	25,887
Total	516,226	347,664	343,171
Costs and Expenses:			
Product and shipping	223,244	248,828	259,661
Oil and gas exploration	4,945	9,620	18,137
Mineral exploration	23,504	17,702	16,845
Administrative and selling	51,045	45,985	36,015
Total	302,738	322,135	330,658
Income Before Income Taxes and Minority Interest	213,488	25,529	12,513
Income Tax Provision (Credit)	66,420	2,953	(10,783
Minority Interest	661		
Net Income	$146,407	$ 22,576	$ 23,296
Net Income per Share	$1.51	$ .23	$ .24
Average Shares Used in the Computation	97,024	97,264	98,781

See notes to consolidated financial statements.

Homestake Mining Company and Subsidiaries

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December 31, 1987 and 1986
(In thousands)

Assets	1987	1986
Current Assets:		
Cash and equivalents	$139,328	$ 94,843
Short-term investments	199,579	8,738
Receivables:		
Trade	17,568	23,352
Interest and other	8,746	4,274
Inventories:		
Finished products	17,803	23,202
Ore and in process	6,387	2,684
Supplies	14,968	14,273
Other	4,185	2,931
Total current assets	408,564	174,297
Property, Plant and Equipment (at cost)	765,259	733,165
Accumulated depreciation, depletion and amortization	(363,533)	(311,723)
Net property, plant and equipment	401,726	421,442
Investments and Other Assets:		
Mining venture partnerships	89,689	81,554
Other assets	15,452	16,003
Total investments and other assets	105,141	97,557
Total	$915,431	$693,296

Liabilities and Shareholders' Equity	1987	1986
Current Liabilities:		
Accounts payable	$ 17,262	$ 15,726
Accrued liabilities:		
Payroll and other compensation	12,469	11,252
Income taxes	35,508	2,276
Severance and other taxes	3,375	2,739
Other	5,111	7,373
Total current liabilities	73,725	39,366
Long-Term Liabilities	66,286	61,905
Deferred Income Taxes	64,600	37,637
Minority Interest in Consolidated Subsidiary	7,949	
Shareholders' Equity:		
Capital stock, $1 par value:		
Preferred—10,000,000 shares authorized; no shares outstanding		
Common—250,000,000 shares authorized; shares outstanding (net of treasury shares): 1987, 97,302,000; 1986, 96,668,000	99,021	49,511
Other capital	75,617	124,903
Retained earnings	558,076	423,813
Treasury stock (1,719,000 shares in 1987 and 2,353,000 in 1986)	(19,334)	(26,473
Accumulated translation adjustments	(10,509)	(17,366
Shareholders' equity	702,871	554,388
Total	$915,431	$693,296

See notes to consolidated financial statements.

For the years ended December 31, 1987, 1986 and 1985
(In thousands)

	Common Stock	Other Capital	Retained Earnings	Treasury Stock	Accumulated Translation Adjustments	Tot
Balances, January 1, 1985	$ 49,342	$121,615	$397,532	$	$ (10,919)	$557,57
Net income			23,296			23,29
Dividends			(9,875)			(9,87
Exercise of stock options	47	641				68
Stock issued to employee savings plan	51	1,211				1,26
Foreign currency translation adjustments					(5,627)	(5,62
Balances, December 31, 1985	49,440	123,467	410,953		(16,546)	567,31
Net income			22,576			22,57
Dividends			(9,716)			(9,71
Purchase of 2,505,000 shares of treasury stock				(28,191)		(28,19
Exercise of stock options	44	634		775		1,45
Stock issued to employee savings plan	27	802		943		1,77
Foreign currency translation adjustments					(820)	(82
Balances, December 31, 1986	49,511	124,903	423,813	(26,473)	(17,366)	554,38
Net income			146,407			146,40
Dividends			(12,144)			(12,14
Two-for-one stock split	49,510	(49,510)				
Exercise of stock options		(366)		6,002		5,63
Stock issued to employee savings plan		590		1,137		1,72
Foreign currency translation adjustments					4,074	4,07
Transfer of accumulated translation adjustment to minority interest					2,783	2,78
Balances, December 31, 1987	$ 99,021	$ 75,617	$558,076	$ (19,334)	$ (10,509)	$702,87

See notes to consolidated financial statements.

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For the years ended December 31, 1987, 1986 and 1985
(In thousands)

	1987	1986	1985
Cash Flows from Operations:			
Net income	$146,407	$ 22,576	$ 23,296
Reconciliation of net income to cash provided by operations:			
Increase (decrease) in deferred income	3,446	(8,079)	10,890
Undistributed mining venture earnings	(4,969)	(2,687)	333
Gain on sale of minority interest	(146,336)		
Loss (gain) on disposal of assets	(8,823)	5,202	10,576
Depreciation, depletion and amortization	56,662	59,379	61,884
Reclamation reserves	191	1,444	4,800
Other non-cash items—net	3,124	(3,813)	6,690
Deferred income taxes	26,963	3,996	(15,647)
Undistributed minority interest	661		
Effect of changes in operating working capital items:			
Receivables	1,312	17,243	(9,515)
Inventories	1,001	15,463	17,019
Accounts payable	1,536	(5,567)	(663)
Accrued liabilities	35,085	(1,014)	2,472
Other—net	(3,516)	1,255	4,898
Net cash provided by operations	112,744	105,398	117,033
Investment Activities:			
Decrease (increase) in short-term investments	(190,841)	(3,456)	24,878
Additions to property, plant and equipment	(39,305)	(43,536)	(82,295)
Net proceeds from sale of minority interest	156,251		
Net proceeds from sale of assets	10,417	2,000	
Investment in mining ventures		(15,132)	
Net cash used in investment activities	(63,478)	(60,124)	(57,417)
Financing Activities:			
Dividends Paid	(12,144)	(9,716)	(9,875)
Common stock issued		3,225	1,950
Treasury stock issued (purchased)	7,363	(28,191)	
Net cash used in financing activities	(4,781)	(34,682)	(7,925)
Net Increase In Cash and Equivalents	44,485	10,592	51,691
Cash and Equivalents, January 1	94,843	84,251	32,560
Cash and Equivalents, December 31	$139,328	$ 94,843	$ 84,251

See notes to consolidated financial statements.

and Tevis enterprise, although it had gone pretty well public by then.

Chall: I take it he was there a long time.

Swent: Yes. Anyway, he became president in 1914, after he had been on the board for twenty years, when J. B. Haggin died, who'd been the president. So Clark was president from 1914 to 1943. One thing we have to be careful of in the Homestake history with Clark is it's a common name, and there were several Clarks involved.

Chall: Are they all cousins?

Swent: Some of them I don't think were related; they may have been. But they did different things. One of the early ones with George Hearst up in Lead was arrested with a group and tried for murder, and was released, found not guilty. But there has been some confusion; that has been attributed to Edward H. Clark, and that's not the same one at all. All I know is his name was Clark. [laughter]

Clark's Interest in Lead

Swent: After he became president, he began going to Lead quite frequently. One of the things that happened is that within ten days of each other, Haggin died, and T. J. Grier, who was manager [at Lead], died. So they lost both a manager and president within ten days of each other. This was really quite a jolt to the company, and the new manager was an older man named Richard Blackstone. So having a new manager on the job, I guess Clark decided he had better follow things closely, and he did. Even in those days, when transportation was pretty difficult, he'd go up there two or three times a year and spend several days there with Blackstone. Most of the time, he let Blackstone do what he wanted to do. The only thing I know of where he didn't agree with him and didn't let him do it was when Blackstone wanted to build a second hydroelectric plant--which they did do; they did do that--but he wanted to bring the water down to the plant through a tunnel. He wanted to drive a long tunnel, and the board wouldn't approve that. They told him to use surface pipelines and flumes. Eventually he did it, although not very gracefully, I guess. [laughs] He fought it for quite a while.

Chall: Was that because of the expense of the tunnel, do you think?

Swent: Yes, I'm sure it was. Now, Clark never went to Tayoltita.

Chall: Your father was really in charge there.

Swent: But Dad had access to him when he needed it, although that wasn't very often. Dad was pretty independent. As a manager, he had fairly extraordinary powers down there. But on major things, he had to consult, and he always was able to get hold of Mr. Clark. Clark came out monthly, because the board meetings were usually in San Francisco, and he came out for those.

Chall: While he was still living in New York?

Swent: He was living in New York.

Chall: Did any directors come down to Tayoltita, or anyone from the board?

Swent: Not at that time--well, maybe under Clark. There was one fellow who was a director for one year, but he was a long-term employee of the company. His name was William Boos. He was, I think, secretary of the company for many years, and served one year as a director. He came down several times. I remember when I was a kid that he came down. I knew Bill Boos for many years--good enough that I could call him Bill, anyway. We were on a first-name basis.

Chall: So that was a long time that Clark was in. Of course, you were really just growing up in those years.

Swent: Yes, and there are a lot of things I wish I had paid more attention to now, [laughs] that my dad was talking about.

In 1936, Bruce Yates, who was manager of Lead, died suddenly. When Dad heard this, we were in Tayoltita. He wanted to be named manager of Lead, so he went and made a trip to San Francisco and they said, "No, you're more valuable to us down where you are. We'll have a harder time replacing you there than replacing Yates," although professionally it would have been a bigger job for him.

Then in 1938 Dad moved out of Tayoltita to San Francisco.

Chall: In what capacity?

Swent: I'm not really sure what his title was at first. He later became president of San Luis Mining Company. I'm not sure whether he had that title right away or not. He made frequent trips back to Mexico for a long time after that, but his base of operations became San Francisco.

Chall: Was that when Morel took over?

Swent: Yes. And then in 1940, Dad was named a director of Homestake. San Luis did not publish annual reports for many, many years. I have some of theirs from later years, but they began publishing annual reports, oh, in about the late 1960s or early 1970s. So I have no records of who were officers and that sort of thing, but I do know that most of them were the same as Homestake's.

Concern About Replacing Clark

Swent: Anyway, one of the things that I do remember Dad was quite worried about when he became the director was who was going to succeed Clark as president. Clark's health was deteriorating, he was in his eighties by then. He was forced out as president of Cerro by the directors; they just said, "You're too old and you'll have to retire." The Homestake directors did not do that, but it was obvious that he was getting to the point where he had to start giving it up.

So Dad was very concerned, and this is where I wish I had paid more attention to what he was saying, because I remember he talked a lot about it. He said it was going to be very difficult, because it would be difficult to get anybody who would satisfy all the factions. Now, I don't remember what the factions were, but I do recall that one of the things that he was worried about was an outside group of some sort. I don't know who they were, whether it was the Cerro group--one of the directors at that time was named Kingsmill, who had previously been president of Cerro. They perhaps had some thoughts about this. But it's my recollection that it was really another company, though I'm not sure which one it was. It was a mining company that was interested in a possible takeover--they had some interest in it--they had to be satisfied with the new president. The Hearst interest had to be satisfied, and the Haggin and Tevis people.

Chall: So this was all going on really almost during the war--or had they been discussing it a long time?

Swent: Well, this started probably in 1941, yes, just about the time of the war.

I do recall my dad describing Clark as a liquidator. He didn't think much of his mining knowledge; he said he didn't really like or enjoy mining and he didn't; he thought it was too risky for people to venture their money in.

Chall: [laughs] That's interesting for the president of a mining company.

Swent: But they didn't sell any of the first stock under his presidency. Somewhere around in 1935 or '36, when the price of gold went up from $20.67 an ounce to $35 an ounce, Homestake just made gobs of money on that price. They split the stock I think eight to one and declared the same dividend on the new shares as they had on the old ones.

In 1931, I think they declared something like $2 million dividends. In 1935, they paid $14 million of dividends. There are a lot of people that have tried to second-guess this, and said, "Gee, if Homestake had kept some of that money, they could have--" it was Depression days; other mining companies could have been acquired cheaply, and they could have built a tremendous mining house if they had wanted to. But that was not Clark's idea of what he should do, and that's why Dad called him a liquidator.

Chall: I see. Now, the reason for it's going from $20 to $35 was a government policy, wasn't it?

Swent: Yes. It was raised by Roosevelt. Well, he was forced to in a way. They were trying to hold it at $20.67, but in Europe the price started to get away from them. It got up to $27, and since you weren't allowed to ship the gold out of the country, Homestake shipped their precipitate out. They shipped the precipitate to London, and had it refined there, and then sold the gold in order to get the $27 price. So Roosevelt was sort of forced by world affairs, or world monetary matters, to raise the price to $35 an ounce.

Chall: That's where it stayed, didn't it, for many years?

Swent: Yes, it stayed at that until 1968.

Donald McLaughlin, 1943-1960

Swent: But to continue on the presidency matter, in 1941 Don McLaughlin moved from Harvard University where he had been teaching for many, many years--he had been head of the Department of Geology there--and moved to Berkeley and took the job of Dean [Frank H.] Probert, who had headed up the mining school in the Hearst building. And then later they changed--he was dean of mining, and I think the first year Don McLaughlin was, too. But then after that, they consolidated his job into the dean of engineering.

But at any rate, that put Don here at Berkeley. He had been a consulting geologist for Homestake since the early 1920s, I think

1923 or so. At that time, there was some concern about the future of the mine reserves, and just whether the ore body continued in depth. They thought that they were mining what they call main ledge at that time, and this was petering out somewhere in the neighborhood of the 2000 to 2300 level, so there was some concern that there would be no future below that.

So they engaged Don McLaughlin as a consulting geologist to make a detailed geological study, and he built up quite a team working there. He came out in summers, but directed the work mostly from Harvard. He worked his academic year there, and used his summers to do his consulting work. He had mostly graduates of his working, and he did the same thing at San Luis. He was consultant down there too, and he placed a geologist on the staff, and then he'd come down for a couple of weeks once a year and go over the man's work.

At any rate, he had finally solved the matter of extension beyond the 2000-foot level, and they determined that there was ore below the 2300. Then he also made, at the same time, another recommendation, and that was that they change their mining method from what you might call a mass mining method, where they mined everything, to a selective mining method, where they could select just the ore that was profitable. Little by little, they changed to this, and started using selective methods. It made a tremendous difference in the grade of ore mined and in the profitability of the company.

So he had long acquaintance and was well known to the board. They had asked him to be a director, but since he lived at Harvard he didn't want to travel out here. In those days, coming out to a monthly meeting would have been quite a chore. So he had not accepted, but when he came out I think he became a director in 1942. He moved out in '41.

Then I remember Dad saying that this was excellent, that Don McLaughlin was the obvious successor to Clark, that he had the personality and the ability to be acceptable to all parties, and that he thought that was an excellent move. He had pushed to have Don made president. At any rate, in 1943, he became president and chief executive officer, and Clark became chairman of the board. Clark served until he died three or four years later. And after Clark died, why, they just didn't fill the position of chairman of the board. Not for many years.

Chall: So the president was all of it.

Swent: Yes, for a long time. Of course, Don McLaughlin, I've given you the background. He was a mining geologist and an educator, and

really a very brilliant, sophisticated person. He was another protege of Phoebe Hearst and of the Hearst group, so he represented their interests also.

McLaughlin Expands the Board's Size, Introduces Directors with Mining Experience and Interest in Diversification

Chall: Did he have management skill required of the job that he took over as president?

Swent: Yes, he had good background, very good technical background, and wide acquaintanceship in the industry. He had worked at Cerro de Pasco and had been on their board, and had actually worked in Peru in management positions. In the first few years that he was president, he did an incredible job.

One of the first things he began was to expand the board, and to bring in really other people. I think when my dad went on the board in '38, he was the first mining person to go on the board. Up until then, the board was just composed of financial people who were representatives of the various major stockholders. The board really did very little; it was a rubber-stamp board dominated by Mr. Clark. The same thing was true of the San Luis board: they were almost the same people.

But McLaughlin began to bring in other people. He brought in Ira Joralemon, who was a very prominent geologist in copper exploration; he had done a great deal of work in copper all around the world. He was very, very well known.

Another one of the things that McLaughlin did--well, not at first, but around 1952--he and the board with him made the decision that Homestake had to diversify, because being dependent on one mine was not enough. They could see the handwriting on the wall with the fixed price of gold, and the costs rising, that they might get squeezed out of the business and that mine someday. So they decided that to keep the company going, really they should diversify and do other things.

And the first thing they went into was uranium. They brought on board a gentleman named Paul Genachte as a director. Don was on an advisory committee to the Atomic Energy Commission, so he knew a number of people in that industry, and Genachte was very well versed in this. I forget what his position was, but he would have been a tremendous help in the uranium business. But unfortunately,

he got assigned to an overseas job and had to give up the directorship. So he didn't really last very long.

Chall: His background was in--?

Swent: Well, his business; he was in the uranium business, and nuclear fuels and this sort of thing.

Another director that Don McLaughlin brought in was Jim Salisbury. Now, there had been an older man--I think Jim's dad--they both had the initials O. J., so if you read through the annual reports, you'd think they were the same person. But they were different. The elder O. J. Salisbury served just a few years as director. The Salisburys had probably the fourth largest holding of Homestake stock. It was small compared to the Hearst-Haggin-Tevis holdings, but they had been the people who did the freighting, and carted in the first equipment for the first mill in Lead. They had been paid in stock. So anyway, the older O. J. Salisbury was on for a few years and then he resigned, and there was nobody there for the Salisburys for several years.

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Jim had operated in South America in gold placers and other properties, and was a very conscientious director. He was on the board until just very, very recently.

I remember during the years when we were in Grants that he got very involved and went into the lawsuit that Homestake was involved in at that time with Atlas Corporation, 1958-59, and he spent a great deal of time down there with me going over everything we could to see what Homestake's position was and what its strategy should be. Jim was always very interested in the operations, and spent a lot of time at it, and did his homework.

Chall: You were able to get in touch with McLaughlin wherever you were, I guess? You were in Tayoltita for a while, and Grants.

Swent: Yes. Well, when I first went to work for Homestake--

Chall: You went to Lead--

Swent: I went to Lead. It was actually McLaughlin who hired me and sent me to Lead. I came up because I got the word in Tayoltita that they wanted to offer me this job, and so I made a trip to San Francisco to meet with Don McLaughlin and discuss the job. So I accepted it, and that was in 1954.

Chall: You had said also that he had wanted to set up a mining research organization, or just mining research section at Lead.

Swent: Well, this was back in '46.

Chall: It didn't work out.

Swent: I'm not sure whether that was a McLaughlin concept or not. It may have been a local concept at Lead. But there was division among the management up there, a terrible dichotomy with a manager, an assistant manager, and a superintendent. Guy Bjorge had succeeded Bruce Yates as manager. Then they brought in as assistant manager a man that Dad had recommended, from Mexico, named Harlan Walker. He was a mining engineer. The mine superintendent was Ed Ross, who was not a graduate engineer. He was just a practical man who had lived there and worked his way up through the ranks, and was a very bright fellow. But he ran his department with a very tight hand, and he wanted no interference from an assistant manager. They just didn't get along at all, and any ideas that Walker would propose were always knocked down; Ross wouldn't accept them.

I think this mining research thing was one of Walker's ideas, and it eventually fell under Ed Ross. I worked for Ed Ross, and they started the training program, and they did it for several years, but they never started the research group until long after Ross had retired.

Chall: Where did Bjorge fit in with this--?

Swent: Well, he couldn't make peace between Walker and Ed Ross, and so Walker was in a really bad position. In the long run when Guy Bjorge retired, it was obvious that Walker could not be named manager because he had too many enemies there and he wouldn't be well accepted. So they went outside and brought in Ab Shoemaker--with a year's anticipation, and Walker resigned and went to Peru and worked on an iron ore project in Peru.

Chall: This was all happening during McLaughlin's term?

Swent: Yes. Now, another director that they brought in was James Lochead, but he was a banker. He was president of the American Trust Company in San Francisco. Don also brought in John L. Simpson, who was a financial person, very brilliant man, and was a good director for many years. And then another director that came on is John B. Fermor-Hesketh of England, and he was an heir of the Tevis estate. In fact, he came to Tayoltita at one time, visited there.

Chall: Yes. That's the one who came with the wife, who wanted to drink right away?

Swent: Yes. And he served on the board for the Tevis estate for several years.

Meshing Tasks as Homestake President and University of California Regent

Chall: So you give McLaughlin the credit for important changes in Homestake?

Swent: Well, in the early years, I thought he was particularly good. See, at first he was holding two jobs. He was both the dean of engineering and president of Homestake. In the early days this was common because president was not a full-time job. But as the company grew in its operations, it did demand more time, and in 1952 when he decided to expand, it really did require more time.

Then he became a regent, and I don't remember just what year he became a regent [1950], but the university began to impinge seriously on the time that he gave to Homestake. I thought that from then on, he sort of neglected Homestake. He did a lot of the university work in the Homestake office. He'd go there and use the office, but he'd be telephoning and writing letters and interviewing people and that sort of thing, or seeing people on university business. A lot of the business was not Homestake work.

Chall: Was there nobody close enough in the management to keep things rolling well?

Swent: Well, it was still basically until about '55 a one-mine operation in Lead, and the manager there still was pretty independent. Shoemaker became manager in 1951, and he was pretty independent and knew his mining; he was an excellent mining engineer. He had been in the Philippines mining over there until World War II started, and then he was taken prisoner and held in a detention camp until the end of the war, and almost starved to death, but made it through. Then he came back and got a job working for Triumph Mining Company, which was a San Luis venture up in Idaho. He was a manager there for several years working for my dad. I met him then when he was working for Dad.

When they could see the date approaching for Bjorge's retirement, they brought him over as a mining consultant, and he became well acquainted with the mine. And he introduced some new methods in the mining, particularly the cut and fill stoping. Then they named him manager when Guy Bjorge retired. That was still under McLaughlin.

He didn't get along too well with Don McLaughlin. Don was a very sophisticated, polished, well-spoken individual, with many years of high level university positions, and Ab was a real practical mining engineer. He talked rough and tough, and very direct. He was not in any way indirect or compromising. He took orders; he'd do what he was told to do, but he often really didn't like it.

Chall: Did the company, do you think, suffer during those latter years when McLaughlin was busy with the university? Or did it just kind of go on following its own momentum?

Swent: I was at Grants. And I would say that we suffered some from his lack of full-time attention. Of course, he tried to make up for it--I think he probably realized this, but he would do things--and this really used to bother me and Ab Shoemaker--he would do things without consulting his staff. For instance, we had a partnership with Sabre Pinon in New Mexico, and Dick Bokum was president of Sabre Pinon. When Dick couldn't get what he wanted through me in Grants, he would come up to San Francisco and set up a date with Don McLaughlin, and say, "I'd like to do this," or "I'd like to have you do that," and Don would say, "Sure, sure, we'll do it." Wouldn't check with Shoemaker, wouldn't check with me, and we had all kinds of problems with that sort of thing.

We also had a real feud that went on there between Shoemaker--and this was worse than between Shoemaker and McLaughlin--it was between Shoemaker and John Hamilton. John Hamilton was chief accounting officer and treasurer. He spoke with a sort of British accent and was somewhat inclined to drink too much, and the British accent got even more so after that. [laughter] He and Ab just did not get along; Ab thought the accounting that he did and the methods that he was setting up were very impractical. They got to the point where they practically weren't speaking.

Now, you see, when they started the New Mexico work, Ab Shoemaker got moved to San Francisco and was made vice president and manager of operations.

Chall: Was that a new--?

Swent: Which was a new position. That was when he really began feuding with John Hamilton.

Chall: Oh, right in the central headquarters.

Swent: Yes. And in many ways, rightfully so. When we started up, they were going to do all the accounting in San Francisco. We had to send all the reports in, and they even printed the payroll checks

for every man on the payroll in San Francisco, and mailed them out to us for distribution. We didn't get any cost statements for three months after we started operation. We didn't know where we were, were absolutely in the dark as to what things were costing. There were reasons, primarily that Homestake had borrowed money to invest in this venture, and they had paid some financing fees, and the accountants couldn't figure out how to charge off the accounting fees. And while they were thinking about it, they just didn't put out any statements.

Swent's Relationship with Headquarters

Swent: Don McLaughlin in many ways was a compromiser. He had high regard for his own ability to step in and settle arguments and differences. I had to go to him. I had a feud with John Hamilton myself. He had hired a man named George Snyder. When I went down to Grants, George was already hired, and he was to be the head of the office staff there, to head up the administrative staff. George had good experience in the uranium end of it; he had lots of experience. He was not an accountant, because they didn't need an accountant. They were going to do the accounting in San Francisco.

Well, later the accounting got shifted to Grants, and even the IBM machines that they put in San Francisco got shifted down there. That part of it got settled, but I'd be asking George to do this and to do that; I thought he was working for me. I would ask him, "Where is this that I asked you for, where is that?" "Well, I haven't got it done yet." "Well, why haven't you?" "Well, I've been working on this job for Hamilton," or "I've been working on that job for Hamilton."

So I finally went to McLaughlin. I talked to Shoemaker first and then I wrote a memo to Don McLaughlin asking for clarification on this jurisdiction as to who controlled this office manager. And he came back with a compromise that the office manager would be hired and fired jointly by me or the manager and the company treasurer. But on the site, he would work for the manager. So that helped me quite a little bit, and then if John wanted a job done, I could schedule it in. He'd have to come to me rather than to George.

Well then, John got on the binge that he wanted to have me fire George and get an accountant. He said, "He misrepresented himself to me, told me he was an accountant when I hired him, and he's not an accountant." So he wanted me to look for another person that was satisfactory to both. I was satisfied with George,

and I didn't think we needed a replacement. But I had my orders, so I began looking around, and I located one fellow that had been with ASARCO in El Paso. So I brought him up to Grants, he looked the job over and everything. Then we sent him on up to San Francisco and they nixed him.

That was fine with me. [laughs] Then, they still wanted me to look, so I kept on looking. Another one that looked pretty good was a fellow named Charles Rohrer, who was with ASARCO also. He was in I think Tucson. I went over there and interviewed him, and he seemed quite interested. After some little time of discussing it, I went back to Grants and left the proposition open with him. He finally replied, well, he thought it was a sideways move, that it really wasn't improving his career, so he turned it down.

Well, all of this took time, and the issue sort of died by then. I wasn't pushing it anyway.

Chall: Snyder didn't start looking for another job? Did he know this was going on?

Swent: Oh, yes. George knew about it, and I told him where it all stood. At any rate, later when they went into the Amax joint venture in lead in Missouri, why, Rohrer was hired as the chief accountant for it. He was a good man, and he was very good down there, and worked for the joint venture for years.

Homestake Establishes Its Own Office

Swent Well, to go back a little ways, in the early 1940s or earlier than that, Kern County Land, San Luis, and Homestake all shared this little office in the Bank of America building on California Street. And they were there for years. All the time that Dad was in Mexico, that was where the headquarters was, and even when he first came up it was there. Finally, they moved to the Shell building, I think the 26th floor. I'm not sure what year that was.

Then in 1958, the litigation in New Mexico began, and this took enormous amounts of people's time in San Francisco. They had been sharing certain people on the formula basis, and Dad got the feeling that he wasn't getting a fair shake on this for San Luis, that these people were being used more for the Homestake lawsuit and to prepare data and all this, and San Luis was just getting gypped on it, and not getting much attention. He couldn't get work done that he needed done.

So he finally decided that he'd pull San Luis out, and they moved down to the 18th floor and set up an independent office, and split the personnel up. San Luis took several people, and then the rest stayed with Homestake.

Kern County had left long ago. When they struck oil, I guess in the early forties, they grew so rapidly that they had to move out, and they went separately too. So this now left Homestake alone, with its own office, and that's the way it is today.

Chall: So there's nothing joint with any of the others now.

Swent: Not any more. San Luis has been liquidated anyway, but for a number of years they just had separate offices.

When Don McLaughlin's retirement age began to come on the horizon, they began to look around for a successor. Ab wasn't ever seriously considered because he was just too abrasive a character. They went outside and picked up a man named Wallace Macgregor, who'd been with Climax Molybdenum Company. Climax Molybdenum Company and American Metals had just merged. He had resigned because he could see that the American Metals people were going to dominate the picture, and that he'd get squeezed out.

So Homestake brought him in as a vice president, and were going to train him to be president. He and Shoemaker got along very well. Wallace has a very nice, smooth personality, and gets along well with people. Very bright, very capable. Knows the metals business very well. He's not a mining engineer, though.

Chall: He's a businessman?

Swent: Yes. I worked with him and Shoemaker for about a year, and then I guess things worked out back with the new company, called Amax now, and he was able to go back in at a top-level job; so he went back to them.

John Gustafson, 1960-1969

Swent: He had never been made president. He'd been in training for it. So then Don McLaughlin brought in John Gustafson, who had been a student of his and who had worked on his team of geologists when they did the study in Lead in the 1920s. John had done a great deal of that work.

Chall: So he'd been a professional geologist?

Swent: Yes, he was an exploration geologist. He had been with Hanna and was vice president of exploration for Hanna Mining Company in Cleveland. He got to the point, I think he told me once, with the stock option plans that they had, that he was better off to quit and exercise his stock options than to keep on working for them. So he did that, and Homestake picked him up. Don McLaughlin of course had known him, and he had also worked in Australia. He'd had worldwide experience; he had also been the first director of raw materials procurement for the Atomic Energy Commission during World War II. He had a very good background.

He came in and was made president, but he needed indoctrination in Homestake, and Ab Shoemaker, who was the one to do this, to get him indoctrinated in all the operations, kind of blew up at this. He said, "Well, I already did it for Macgregor; now I've got to do it all over again for somebody else." He just wasn't very pleasant about it. And John couldn't get along with him, so Ab was retired and made a consulting engineer to the company. His role just lessened from there on.

Chall: Who trained Gustafson?

Swent: Well, Shoemaker did. He took him around and got him broken in, but he didn't really like it very much. John was really a very good man; I liked him very much. Now, he made some real changes.

Chall: This was 1958 when he came in?

Swent: John came in in '60 as president. Macgregor was there in '59.

Chall: Edward Clark was there until he was in his eighties. Did the board somewhere between that time and McLaughlin's time put in a sixty-five year old retirement rule?

Swent: Yes, they put in a retirement rule, and I'm not sure what age it was. It might have been seventy. But they had a retirement age.

Chall: That's why McLaughlin had to retire?

Swent: But they made him chairman of the board. At the time, there was no limit on the chairman of the board. They finally put a limit on that, too. Because he was getting too old. And then they made him honorary chairman of the board.

Installs a Budgeting System

Swent: John made some major changes. The first thing he did was to put in a budgeting system, which was absolutely new to the whole company. Nobody had ever done this before. It just meant making up a forecast of what your expenditures and income would be for the following year, and also to plan what he called a five-year forecast. This was to be done and submitted to San Francisco for review, and then we would meet; the managers would come up, and we would have a discussion of the budget, of each individual budget. It took several days to do this, to go through all the budgets.

Then you were guided by that, and at the same time, you put in for any capital expenditures that you wanted. They put in a rule where the president could approve up to $10,000 of capital expenditures, but above that it had to have board approval. I think they modified that later to $50,000. But you were supposed to put your list of requirements and estimated cost for all of these things into your budget.

So this was very revolutionary, and taught us all a lot of things. We had to learn to do a lot of new things that we hadn't done before.

Chall: It seems such a proper thing to do in a large company.

Swent: Well, the timing was there for it. The company expanded; we now had at least three separate managers. We had the manager in Utah, we had the manager in Lead, and had the manager in New Mexico. In fact, we had two managers in New Mexico for a while because of that lawsuit. So the company had four managers. So it was necessary. It hadn't been so necessary before when we had just one operation, and they made money regardless of what happened.

Chall: Did you enjoy that kind of activity, coming up to headquarters and going through budgeting, and meeting with the other managers and headquarters personnel?

Swent: Well--

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I jumped in and learned as much about it as I could, and tried to do as good a job as I could with it. It worked out all right.

Chall: Did Gustafson bring in any other financial people? He had to bring them in, I guess, if he was concerned with budgets and financial projections.

Swent: Well, John brought in a number of outside directors also.

Chall: I see. What about Hamilton, and all of his staff?

Swent: Hamilton retired about that time. Ab Shoemaker, as I said, retired when John became president. I guess Don McLaughlin brought in one director named Wesley P. Goss. He was manager of the San Manuel Copper Mine and Smelter in Arizona, and a very well-versed man in copper mining and mining in general.

Enlarges the Board

Chall: Did this increase the size of the board?

Swent: Yes, they actually gradually increased the size of the board.

Chall: What was it?

Swent: Well, let's see. In 1967, which was, I think, John Gustafson's last year, there were thirteen directors. Originally, there had been five or six.

Chall: That's still not a big board.

Swent: And also, I think Don McLaughlin at the very end brought in Charles F. Park, Jr., who was an exploration geologist on the Stanford faculty. Then John brought in Dmitri Vedensky--we called him Dee--a fine person. Dee had been a metallurgist for Hanna, and had retired. A brilliant metallurgist. He served well on the board, and he gave us lots of good advice.

Then he also brought in Howard Vesper. Howard Vesper had been vice president of exploration for Standard Oil of California, and retired, and was on the same advisory committee to the AEC that Don McLaughlin had been on. And then they also brought in John R. Kiely, who was with Bechtel Engineering Company, and oversaw a lot of the mining projects in which they were involved. John was a very capable director also. All of these people were very capable.

Chall: That means that the board was not as much of a rubber-stamp any more as it had been in the earliest days?

Swent: No, that's true, but they were mostly people that John Gustafson had chosen, and you generally choose people that think the same as you do. [Laughs]

Chall: Right; that of course is true.

Swent: Another one that he brought in was Robert F. Mulvany, who was vice president of finance. He was a local person, and he was primarily from the stockbroker industry. And John had to expand, of course, with the increase in activities, he had to expand the San Francisco office crew. Under Mulvany, they had hired Charles Corbin to be vice president, secretary, and treasurer. That was to replace Hamilton; Hamilton at that time had gone. He'd gone the same way that Ab Shoemaker had, as consultant in administration.

Expands Exploration Activities

Chall: One of the most important changes that came about, as you mentioned earlier, was interest in diversification. Was this continuing?

Swent: Yes. And John expanded the exploration activities a great deal. Of course, Homestake was doing pretty well at that time. The Lead operation was not; they were having troubles with the $35 gold price and rising costs, and they got to the point where they couldn't raise wages and that was when they got unionized. I think they were unionized in 1966 by the U.S. Steelworkers, which was a cost-raising thing too.

But the uranium business was doing wonderfully, so that Homestake had quite a bit of money that they could put in to exploration, and John increased the exploration activities, or saw to it that Paul Henshaw was still doing the activities and had money to work with.

Chall: Looking for metals, mainly?

Swent: Yes. For instance, John was able to put him in touch with Hanna and they formed a three-way exploration syndicate: Union, Hanna, and Homestake--Union Oil Company in Los Angeles, Hanna Mining Company, and Homestake--which operated primarily in Australia. And then, I think it was through John's efforts and his connections with Hanna, that he got Paul Henshaw into the iron ore business. Homestake got into the iron ore business with Western Mining Company in Australia. I think it was also under John that they went to work on the lead-zinc venture in Missouri, acquiring property, drilling, putting it together with Amax, and then eventually building a mine, mill, and smelter.

Chall: Were you able to get to Gustafson if you needed to, or did you have to go through a lot of intermediaries?

Swent: No, no. Of course, as long as Ab had been there, I had always gone through Ab before I went to McLaughlin. However, now that Ab was gone, I answered directly to John, and he had me named an officer. In 1962, I was made vice president.

Chall: Of the company?

Swent: Yes. Although I was still in Grants. I had good access to him. I sort of chose the road of being as independent as I could be, and going to him as little as I could get away with, but we got along very well. I got along quite well with John.

Illness

Swent: I want to go back to something on John Gustafson. John, when he first came to Homestake, was suffering from some gastric problems, and he was in great pain at times and had to have surgery eventually, and much of his stomach removed. So that made it difficult for him. I think there were some negotiations that he conducted while he was under pain there that might have come out better if he'd been a well man. But he did accomplish something with Dick Bokum of Sabre-Pinon. Dick had bought out the limited partners of Homestake-New Mexico Partners. They went ahead and combined all of those interests into the new partnership called the United Nuclear Homestake Partners--no, it was still called Homestake-Sapin Partners for a while.

But it did away with the dual partnership business, and they changed interests around some. I always thought John could have done a better job if he'd been a little bit healthier.

In his later years, he suffered from Parkinson's disease, particularly after his retirement as chairman of the board, but he still kept an office. They gave him an office in San Francisco, and he came in fairly regularly for a while. But as the disease progressed, why, his handwriting deteriorated to where there was only one person there that could read it, the secretary he'd had all along; she could read it. Nobody else could.

And then he began falling down. He would fall, and he was a big man. This was just a crying shame. I remember once we were going up to a director's luncheon at the Pacific Union Club. We were going to get on a cable car on California Street to ride up there. John fell down on the street there, I was alongside of him, and I had a terrible time getting him up. He was so heavy; weighed far more than I did.

This kept happening. He'd come in and his pants would be ripped where he'd fallen, such things as that. And then he fell in the office several times. So finally Paul Henshaw and Harry Conger decided that Paul should ask him not to come to the office any more.

Paul finally backed down. He said, "I can't do it; I just can't tell him that." So he asked Harry to do it, and Harry didn't know him as well, so Harry did it. Oh, it just hurt him terribly; hurt John terribly. His mind was still good, unfortunately; his mind was clear as a bell. He understood everything, and was very interested in what was going on.

He lived over here in Berkeley, so after that happened, I used to take financial reports and memoranda and things like that over to him so he could keep up with affairs. I'd take him a package once a month, and he'd read it all. I'd give him a verbal summary of what I thought was of interest to him. He got to the point where he couldn't even reply; he just would nod his head. But still understood it all.

Chall: Well, it's highly commendable, your doing this, because not too many people would take on that task.

Swent: He'd return all this stuff to me, and I'd take it back to the office. We did this for quite a while, two or three years, until he finally died.

At one time, we got into a real hassle in New Mexico when John was first new with Dick Bokum over the trucking business. I think I went into that earlier.

Chall: Yes.

Swent: At any rate--and I don't know if I mentioned this at the time--as a result of it, Dick wanted to have me fired. But John wouldn't do it. So I stayed on, and in later years, Bokum and I got along all right.

Paul Henshaw, 1969-1978

Swent: In 1966 or 1967, shortly after I had moved up to San Francisco, John named Paul Henshaw, Dick Stoehr, and me as a committee to consider the presidential succession. We thought this was terrible.

Chall: You weren't the committee to find a new president? You were to find one among yourselves?

Swent: Yes. And we thought this was terrible. Finally, the report we sent back to him with was: Paul was the senior of all of us, he had been there a year or so longer, and been named a vice president sooner. So we said, "Well, Paul should be prepared to be president, but after that, we think it's the board's business and not our business."

Chall: That's an interesting ploy, isn't it? Had you ever hoped that you might be on the board, or be president? I mean, that comes pretty close.

Swent: Well, I figured that when that happened, and then Paul a year or so later was named president, I figured that that ended any opportunities I had because we were almost the same age--I was three years younger--and Paul had always been afraid of me. I didn't think Paul would do anything that would advance my cause with the board.

Chall: Frightened of you because of your abilities, or--?

Swent: Well, we'd been competitors, in a way, for positions. I had worked for him--with him--in Mexico. Then when I came up here, Paul had been a little distant about my position.

Chall: I guess that always goes on in companies, doesn't it; a certain amount of tension among people who are of the same rank, when there's an opportunity to rise?

Swent: Yes. So at any rate, they sent Paul--and I don't remember just when this happened--to Harvard Business School for a six-months special course to prepare him for the presidency. This was the first time, as far as I know, that they'd ever done this for anybody. Milt Ward, who had taken my place as manager in Grants, a very ambitious fellow, had asked to be sent for some schooling in higher-level management, and I passed this on to John Gustafson and he turned him down. And eventually Milt left and went elsewhere. I don't think he ever got that schooling from anybody, but his ambition paid off; he's president and chief executive officer of Freeport McMoRan now, which is a very large operating company in the oil, gas, sulfur, and metals business. Mining.

Chall: Ambition pays off. Sometimes even if you haven't got a skill it pays off, but if you have a skill, I'm sure it does move you forward.

Swent: Right.

Chall: And what about Stoehr? He was younger than the rest of you, I take it.

Swent: Yes. Dick was younger than I, and younger than Paul, by quite a few years. Dick at one point was made a director, but he wasn't very happy on the board, and he finally resigned. Dick is a very independent-minded person; he has his own opinions, and on the board he said that he was expected to support the president, and he didn't always want to do that. [Laughter] It was frustrating to him, and so he resigned.

Anyway, in 1969 Paul Henshaw was named president, but he had a one-year overlap with John Gustafson before he became chief executive officer. Now, Paul at first made very few changes; he was very cautious. He asked me if I wanted to have the Lead manager's job, and I told him no, that I figured I'd gone beyond that by then, although it was a prestigious job. And I think this solved a problem for him, because he wasn't sure what to do with Don Delicate; he was able to make Don the manager there.

Reorganization of the Company: Divisions Established

Swent: But in 1973--and I don't know where the impetus for this came from; it could have been from Paul's business school training finally showing through--he hired a firm called Schwab and Associates to review Homestake's organization and make recommendations on organization. The impetus might have come from the board; I don't know. But anyway, this resulted in the divisionalization of organization which really was a major change, and this was started in 1975. A uranium division was created, and all the uranium holdings were put into this. Dick Stoehr headed that up, although at one time they wanted me to do that, and I had wanted to wait until I saw what the rest of the recommendations were. That was one of the first recommendations that came out, and I didn't particularly like that. That job didn't appeal to me at the time.

And then I think Don Delicate was head of the gold division in Lead. There was a base metals division formed, and they hired Harry Conger to be in charge of that. Then they had created an exploration division, which they hired James Anderson from Denver to take over. And then they created an international division which Henry Colen, who was already with the company, headed up. I was off sick when all this report came in, and when I came back, it was obvious that I needed less stressful work. So I took the engineering job, the vice president of engineering. Although if I'd wanted, I guess they'd have put me into the uranium division.

Chall: Vice president of engineering put you somewhere above all these other divisions, or--?

Swent: Well, no, it was a staff division. See, the others were operating divisions, and this was a staff position and didn't have the pressures of day-to-day management, and keeping things going. But this reorganization had a profound effect, particularly at headquarters. It had some effect in the field; there was some reorganization of responsibilities in the field. I think at the Creede operation, which is a new one, the manager reported to the gold division.

Chall: Creede, you say?

Swent: Creede, Bulldog Mine. There's a silver mine that Homestake developed in Colorado. But other than a few little things like that, there wasn't much effect on the operations.

It was a big change for me. This was the first time I had not been involved directly in operations, and it was a big change--oh, it led to a tremendous increase in staff in San Francisco, led to a lot of duplication of efforts. Everybody was told, "You run your division as an independent business; you're a profit center, and you're responsible for it." So they geared up, they wanted accountants, they wanted financial analysts and everything else, and they were all duplicating. So it led to a tremendous increase in overhead.

Oh, the other thing in this divisionalization thing--they established a director of personnel, vice president of personnel, and they hired Dick Hinkle for that, and Dick is still in that job.

Chall: Well, that would be an important job.

Swent: It was; it was badly needed.

Management Style Affected by Ill Health

Chall: So Henshaw had about nine years.

Swent: Yes. And it was difficult to deal with Paul towards the end.

Chall: I understand he had Alzheimer's, or something?

Swent: Well, nobody knew it at the time, but Henry Colen and I discussed it several times. We weren't sure whether it was just Paul's

method of management or whether it was because Paul basically did not know operational work. He would discuss things with you and you'd arrive at decisions, and you'd start implementing them. A month later or something, he'd say, "Why are you doing this?" So you'd explain it, why you were doing it. And we weren't sure whether it was faulty memory or whether he was just trying to keep you on your toes.

But as we see it now, it was memory; his memory began to weaken even when he was president. It became obviously worse while he was chairman of the board, and while Harry Conger was president.

Chall: So then in his nine years he certainly changed the organization of the company. Beyond that, did he have strong points in the way the company moved, in any direction; or were they sort of weak points, would you say?

Swent: Well, I think basically he was trying to strengthen Homestake's gold position, and de-emphasize the other positions.

Chall: It was Henshaw from 1969 to 1978?

Harry Conger, 1978-

Swent: Yes, then Harry Conger. And Harry went through the same thing: he was a year as president but not chief executive officer; then he became chief executive officer, and Paul was chairman of the board. When Paul retired as chairman of the board, I forget what year--he should have retired sooner, really, because his memory was just terrible--

Chall: But the board never took action on these kinds of things, did they?

Swent: No, they didn't force anybody out. But they did have the age rule, that's what got Paul out. They did rely on the age rule.

Reorganization: Divisions Eliminated, Overhead Reduced

Swent: So then Harry took both titles, both president and chairman of the board and chief executive officer. Harry did some major changes right away. The first thing he did was do away with the divisions.

Chall: Yes, I remember your telling me that last week. Did he revise them in any way, or did he just simply change the organization and eliminate them?

Swent: Well, he hired a vice president of operations, Bill Humphrey from Newmont, and hired a vice president of engineering. I think I went through my problems of hiring a vice president of engineering, in that I couldn't hire somebody to head up the engineering work and the metallurgy work and all the other stuff that I was doing at the salaries that I'd been given to work with. So Harry solved that one by hiring a separate vice president of engineering and making me a vice president of environmental affairs and occupational safety and health. They hired Rex Guinivere, a New Zealander, as that engineer.

And then he began cutting down staff from San Francisco. There was a tremendous reduction in overhead. Little by little he whittled them down. Henry Colen finally left; he did not get along too well with Harry, and their objectives weren't along the same line.

It got to be under Harry where Dick Stoehr and I were the survivors. Just about everybody else had left. Frank Corbin he retired, let go ahead of time, and brought in a fellow named Drumwright as financial officer.

Strong Management Skills

Swent: Harry is a mining engineer, graduate of the Colorado School of Mines, and as far as I know, the first mining engineer to be president of the company. A lot of the others had degrees, but not mining engineering degrees.

Chall: Does that seem better generally to you?

Swent: Well, it was a breath of fresh air to me, frankly. I found Harry much easier to work with than Paul. I'd had no troubles working with John Gustafson, but Harry understood everything. He understood the operational problems, and he and I got along very well.

Chall: He took on the presidency and the chairman of the board and did away with the divisions. Did he have a pretty good understanding of management, administration?

Swent: Oh, yes. He'd been in some pretty tough jobs. He had worked for the Kaiser group. He'd worked at their iron ore plant at Eagle Mountain, down near Coalinga. And then worked for Kaiser Steel, and was sent up to Canada to reorganize a failing operation up there, and he did an excellent job of it. It was a coal mine operation. So he had lots of organizational experience. Harry is a very decisive man, once he makes up his mind. He's very bright, and once he decides to take action, he takes it and he takes it fast. He doesn't waste any time with easing people out or anything like this.

Chall: What about the board? The board I guess brought him in. Has he brought in others?

Swent: Well, the board approved him, of course--but he was brought in through a headhunting organization.

Board Changes and Expansion

Swent: But Harry has made some number of changes on the board. One of the things that they did under Harry was to merge with Felmont Oil. And of course, Homestake was the survivor. But they had to bring in some representatives of Felmont and put them on the board, Andy Case whom I don't know, and Robert Clark, Jr., I don't know.

Chall: Are you running an oil company?

Swent: Yes. Then Harry brought in Robert Jaedicke, who was dean of the graduate school of business at Stanford. Brought back Wallace Macgregor, who had retired from Amax and is now an independent metals and minerals consultant. Brought on board a fellow, a director named Stewart T. Peeler, who was chairman of the board and chief executive officer of Statex Petroleum Company, and he was sort of to give us knowledge of the petroleum business, now that they'd gotten into the Felmont merger. Glen Ryland, who was president of a company called Ryco Company, Inc., which was not a mining company.

Berne A. Schepman, who is now president of a company called Adair Company, but I think at the time that he was made a director, he was president of Envirotech. Envirotech had acquired Eimco, and they were a maker of mining and milling equipment and machinery.

Chall: Did he simply increase the board, or had there been a number of retirements?

Swent: Well, there were some retirements, and I think enlarged--let me just see--yes, fourteen. It had been thirteen before. And then they brought in Charles Undlin, president of the Norwest Bank in Nebraska, which is the banking firm that serves the Black Hills. So he represents really the Lead area. And then they brought in a fellow named Lynn Walker, who is president of Felmont Oil Corporation. So there are three on the board now that represent the Felmont interests.

Homestake Acquires Felmont Oil Company

Chall: When was Felmont Oil brought in?

Swent: I couldn't tell you. I could look it up, but I can't tell you offhand. It's about, maybe five years ago. I'm not sure yet whether that was a good deal; so far, I've thought it was not. Homestake stock dropped about two and one-half points immediately, and it's never regained those. It's had its ups and downs, but the ups and downs that have followed have not necessarily regained that sudden drop that it had. The ups and downs it has are primarily variations in the gold price, or due to variations in the gold price.

Chall: Is Conger still president?

Swent: No, he's technically not president. He's now chairman of the board. Two years ago David Fagin was hired as president, but he's not been given the CEO job. He's called chief operating officer, which is a new term. But I think it gives Harry a little more time to think about the direction of the company, and that sort of thing. Harry's very energetic. Needless to say, I found working for him sort of a breath of fresh air after several presidents who were not operationally oriented.

Understanding and Acceptance of Responsibility Towards the Environment

Swent's Input on Homestake Policies Relating to the Environment, and Safety and Occupational Health

Chall: So you consider that he's been a strong president.

Swent: Yes, he was a strong president. He accepted the need for concern for the environment. If I have accomplished anything in Homestake, I think one of the things was to have the company make the transition into the modern environmental situation. The early part of it, when a lot of this environmental business started, the reaction of everybody was: "Fight 'em, they're a bunch of wild-eyed radicals," and that sort of thing. But the more you look into things, the more you find out that there was a certain amount of logic on the part of environmentalists. They weren't always 100 percent right, but it made more sense to work with them than try to work against them or fight them.

We did this with the Pitch project in Colorado, and our manager up there, George Simchuck, was just marvelous at this. He negotiated with the National Wildlife Federation people, and eventually took care of all their objections. They did not oppose our license when we went in for a license hearing. We did have opposition from a local Colorado group, but they didn't have much in the way of funds and didn't have an attorney. They did appear at the hearing and did a creditable job of opposition, but they didn't have the facts. We were granted the license.

But the thing that I would say that I did--and I probably couldn't have done it if it hadn't been Harry as president--was to get a policy written and established. I hired an environmentalist to work for us, Dave Crouch. He and I wrote a policy, and then reviewed it with Harry, and he had some changes, but not much, and accepted it. So I think that was a real transition. Harry has accepted that as a fact of life; he's not going to fly off the handle about these guys.

Harry also supported my efforts in health and safety greatly, and is the first person in Homestake at the presidential level to really show much interest in that.

Chall: So even though you've been doing it all these years, practically on your own, there had been little or no interest at the level of top management?

Swent: Right.

Chall: Why do you think that? Is it because he's younger, or we have a new breed of managers, or what?

Swent: If you are in operations and you see these accidents, and you see the effects they have on the business, you know that you're better

off with a safe operation. Somebody that's a financial officer sitting in San Francisco doesn't see the pain and suffering, doesn't see the effects on the workforce. He may give it lip service, but he doesn't really have what I call the zealousness that it takes to promote a good safety program. Harry supported me in hiring somebody to take this over and create a corporate position for safety and occupational health.

So I think those two transitions are very good, and they'll stay, even though somebody else will be president someday. I think that those are here to stay now.

Chall: Well, I think that's good for both of you, that you've been able to accomplish this.

Swent: Well, that sort of takes us through the presidents, I think. And at the same time a number of directors. There were a number of other directors I probably ought to mention. They made Don Delicate a director for a while, and then he retired, and he was taken off the directors. Then, after a while, Bill Humphrey and Jim Anderson were made directors. Jim Anderson has resigned and left Homestake now.

Homestake Company's Continued Profitability

Chall: Well, let's see. In terms of the company, what aspect of the economy has kept Homestake in the black? Has it been mainly for years gold, and then--?

Swent: Well, gold has had its cycles. Of course, it was a gold mining company for the first seventy-five years or so. And then in the fifties, they began facing the rising costs and decreasing profits under the fixed price, so they went into uranium. Uranium for a while kept it going. When they got real close, when their cost got real close to the $35 an ounce level, it was uranium that was carrying them. Then when gold broke loose finally in the early seventies, then gold became dominant again, and it has been ever since. They've had some poor years, but--.

Uranium has been pretty good off and on. Right now, uranium is off terribly; it's virtually nil now. But it was good for Homestake until about last year. Right now it's gold that's carrying it. They've spun off the base metal work into a company called Doe Run, so that the profitability of Doe Run does not appear on Homestake's accounting sheets. They just get dividends from Doe Run. It's a company with St. Joe Lead, jointly owned.

Chall: And then you have the oil.

Swent: But the oil is integrated into Homestake. It's just so-so. It's not a money-maker at this time. I think about the time they went into it was when the oil prices were down, and they haven't ever recovered very well.

Swent Reviews His Career with Homestake

Chall: As vice president, you were never a director? Is there any reason why you weren't?

Swent: Well, I don't know. I always thought as far as that was concerned that--under John Gustafson, I got associated with two or three losing ventures. It was very interesting. The Port Costa adventure was a real failure. I got put in to try to save it, and I couldn't save it, and I think some of this kind of rubbed off on me with the board, because I was answering to the board on that one. I told them after the first month on the job that they should sell it, but you couldn't even give it away.

They finally did get rid of it, but I think I kind of got tarred with that. It was very interesting. People recognized this, and I couldn't get people in the San Francisco office to help me on it, because they didn't want to be associated with it.

Chall: So the handwriting was on the wall.

Swent: Well, it was known to be a failure. And then--oh, Madrigal was another one. Madrigal was never a tremendous success. It was not the failure that Port Costa was, but nevertheless it had a lot of problems and it was not very popular. The board finally basically turned against it.

Chall: But in the early years, they had supported it.

Swent: Yes.

Chall: It cost quite a bundle to set that up.

Swent: Yes.

Chall: I guess they didn't like to admit that they were wrong at times.

Swent: [Laughs] And I kind of felt that as far as the board was concerned, as a result of the Port Costa thing that I had lost a lot of--

Chall: Credibility.

Swent: Well, not credibility, but just attraction. But I never really cared too much about that. When I was a kid in Mexico, my dad was manager, and as far as I knew, that's all there was to mining: you had a manager. That was the top place. For years, I knew there were presidents and directors, but in those days they were just figureheads, they were rubber stamps, and not really very important.

So when I got to be manager in Grants, I figured, well, I've got it. I had done what I wanted to do. I wasn't too keen on coming to San Francisco anyway. John Gustafson wanted me to come up here, and I delayed it for about a year, and I finally came up. I don't think I ever was as happy in San Francisco as I was in Grants, although I learned a lot more, and had a lot broader horizons on it. But in early life, I had never set goals beyond managership. After I went beyond manager, I figured it was all free.

Chall: You like to have the hands-on kind of management.

Swent: I always did. That I did. I still do. I bought my own personal computer here to do work on that. When I was in the navy, I used to envy the enlisted men. I was an officer and I used to envy the enlisted men who could take the machine guns apart and put them back together and fire them, and all that sort of thing. Work on engines. All I could do was say, "You work on that engine."

Chall: It would seem from what you've been saying throughout this series of interviews is that the company allowed you a lot of professional growth.

Swent: Well, they didn't put any limits on me at any time as far as to what jobs I could aspire to. Well, put it this way: until Harry Conger came along, nobody ever called me in and said, "You're doing a good job," "You're doing a bad job," "We think you ought to pay more attention to this, or pay more attention to that." I was just left alone. Harry Conger instituted a system of annual reviews of people, and evaluations. That was the first time I ever had one. I had two or three with him before I retired, and they were very helpful. They show you what your superior thinks are your strong points, or your poor points, and I think it's a very good system. But that wasn't done for a long time.

Chall: Did you feel a sense of dissatisfaction because of this?

Swent: Well, not really. I always thought I was doing a good job, and that if I wasn't, I'd be told.

Chall: Yes, but it's always nice to get a pat on the back.

Swent: Yes. You know, you get raises periodically, but nobody says anything about it. They say, "Beginning such-and-such, your salary's gone up this much."

Chall: They expect you to do well. "Why should we compliment you when we expect it?"

Swent: So until Harry came along and started this evaluation system, I didn't get much. I might have done more, I might have done better in my career if I'd had that.

Chall: But you have also been offered great opportunities, personally. You've had a chance to travel, allowed your children excellent education--as you had. And you do have a lovely home. I suppose wherever you've lived, you've had at least the better of the homes.

Housing

Swent: Well, we had housing problems in Grants. In Lead, we were all right. We got a good house that the company owned up there. It was large enough for the family. But in Grants, we went through very painful experiences. Little houses, and we were so busy at first we didn't have time to pay much attention to the housing business. And finally when things settled down to where I thought we could start thinking about a house, we wanted to build a larger house. We built two and three bedroom houses for fifty of the staff, roughly. And then we leased a number of others that were smaller. We needed a four-bedroom house.

Now, in Lead, they had provided the manager with a great big house for years, a tremendous thing. Kind of old-fashioned, but it was roomy. They gave him a servant and chauffeurs and all sorts of stuff. I had none of this down in Grants. So finally, as I say, after about four years I did ask for an appropriation to build a house. And oh, McLaughlin took a real dim view of this, being Scotch as he is. The partnership was doing fine, they could afford it; but it just went against his grain. He said, "Gee, couldn't you just take two of the houses that are there and live in two of the houses next door to each other?" I said that just wasn't

practical. So finally he did approve a request for expenditure to build a four-bedroom house. We built it and lived in it about three or four years before we left Grants.

Chall: It came in late, then.

Swent: Yes. This one here that we're in now is the first house I've ever owned.

Chall: Well, this is a beautiful home. You probably feel quite comfortable in it.

Swent: Well, it's probably too large for us now, but it wasn't when we bought it.

Broad Intellectual Interests

Chall: Would you say generally that you and Lee have wider intellectual interests than most of your peers and colleagues wherever you were?

Swent: Oh, I'd say probably in some respects, yes.

Chall: I noticed as we've gone along, that whatever you were doing, you would research first, whether it was a trip to Europe, or Peru, or parts of Mexico--any place--you always started first to study the situation, and you've always had broad interests. Your house here is full of books of wide interest, and I just wondered whether this is typical of the average manager in the mining industry?

Swent: Well, I don't know what the average mining manager's like. I would say probably not; I would say we were probably atypical in that respect. My dad was a great reader, and I love to read, and Lee loves to read. In more recent years, my reading is more limited by the deluge of technical stuff that's around. I don't read as many books as I would like to.

Chall: How did it make getting along with people that you were working with all these years, that your interests were a little broader?

Swent: Oh, it's been no problem. Never. No, we really got started on the library business when we were in Mexico. There was no public library or anything. Up here, you don't really have to own any books, you can go to the public library and borrow most books that you want. But we began acquiring books then, and we had quite a tremendous number while we were down there. We kept them for a long time. But finally, we got so many that we've had to give some

away to libraries when we found we weren't really referring to them.

Retirement Activities

Tennis and Community Service

Chall: Now, we've covered all the research you've been doing on radon daughters and other things, even though you are retired.

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What are some of the other activities besides your research that you have been doing? I think you're on some United Way committee.

Swent: Last year, Homestake asked me to serve as a representative on a board the United Way of the Bay Area formed to organize the solicitation of funds from retirees from major companies.

Chall: And you did that?

Swent: Yes. And in 1984, I joined the Rotary Club of Oakland. I play tennis on the weekends. I've been playing with a group almost ever since we moved to Piedmont.

Chall: Where do you play, down here somewhere?

Swent: We play at the recreation courts that are on Vista, just one block from the City Hall [Piedmont].

Chall: Are you mostly about the same age?

Swent: Yes, we're all getting pretty old now. [laughs]

Chall: Well, I think it's pretty good that you can run around a tennis court.

Swent: I replaced one fellow who died in the group. And then we went for a good many years without any changes in the group, and then Paul Watts finally quit playing and died--died a few months after he quit playing. Another fellow, Dennis Mahoney, got back trouble. He's in his eighties now, but he had to quit quite a few years ago because of his back. So we keep bringing new ones in. Right now,

I guess our youngest is Bill Langston, who's general counsel at Homestake. I got him involved. He lives here in Piedmont, too.

Chall: Do you play on Saturday, or Sunday, or--?

Swent: Both.

Chall: Is the Rotary Club a group that you enjoy?

Swent: Well, yes. I stayed away from service clubs for many years, because I traveled so much and I figured I couldn't do a good job in there. I was a member of the Kiwanis Club in Lead for three years, but when I went to Grants they tried to get me to join there. I thought I was really doing more for the community in the activities that I had than I could do within the club. So I didn't join, and when I came up here I didn't join any of them, because I was traveling so much, and they all stress attendance. But after I retired in '84, the Oakland Rotary asked me to join, so I did. That was through one of the tennis partners, Norris Gaddis.

Consulting for Homestake

Swent: My present arrangement with Homestake is that I'm not really doing research work, I'm on a consulting basis with them. I have a consulting contract, which pays me a monthly retainer, and for about 25 percent of my time. I answer directly to Harry Conger. This is something that they've done with a lot of retirees, giving them these consulting contracts. And most of the people have worked, and I've worked too; I've done lots of work.

Chall: Is the consulting on the radon research?

Swent: Well, what Harry has done with me is, in essence, he's turned me over to work for the Mining Congress and industry organizations that might want help in representing the mining industry in different problems. Right now, the way it works, Harry has me write him a letter once a year, outlining the program for the year. Then after he's read it, we set up a date and discuss the letter, and maybe scratch a few things out or add some. Then that becomes the program for the year, and I seldom see him until the next year. The type of work is not stuff that I really need to report on, and it would just be wasting his time to report on it. He gets the Mining Congress reports anyway. He's chairman of the Mining Congress, has been chairman for three years. I think this is his last year.

So then, let's say the contract calls for a monthly retainer, it calls for about 25 percent of my time. If I work more than that, then I bill for my additional time. There was a period there when I was working about 50 percent or so, and was billing pretty consistently, but more recently I've managed to keep it down to the contract amount.

Chall: Twenty-five percent means 25 percent of what would be full-time employment?

Radon Daughters

Swent: Yes. And for instance with the Mining Congress, I'm chairman of the radiation health subcommittee, which is what's doing all this--not necessarily research work, but just following up and commissioning research work, and commissioning reports and keeping up with reports in the field of radon daughters. We have two objectives here. One is of course to help the uranium mining picture, though uranium mining is so minuscule now that there's not a great deal of interest in it. But the uranium mining experience is the only experience there is in the world where they really have any knowledge of people's exposures and effects. They are now trying to translate this experience into an assessment of the hazards of radon and radon daughters in housing. There is just a world of difference between the two types of exposures, in the mine and in the house. There are lots of technical factors that have to be taken into account, and most of them are very uncertain, and they don't have good parameters on them.

One of the objectives, then, is to see that good data is available for this public type work, as well as for regulations affecting the uranium mining industry.

Mine Health and Safety

Swent: The subcommittee that I am chairing has several projects on, but these are gradually coming. We've had about an eight-year running affair going on with the regulations. In 1980, the Oil, Chemical, and Atomic workers filed a petition with Mine Safety and Health Administration requesting a drastic reduction of the allowable exposure limits. The Mine Health and Safety Administration didn't reply for a long time. When they finally replied, they said they wanted some help from the National Institute of Occupational Safety

and Health. They produced a report which they sent around and we critiqued, and eventually the report was not published.

Anyway, after several years, the Oil, Chemical, and Atomic Workers got tired of waiting for action on their petition, so they filed a lawsuit to force the administration to do something about it. In the course of the lawsuit, we provided affidavits and a lot of statements and things. But in the course of the lawsuit, the decision was that MSHA was in the process of revising their regulations, and the suit was dismissed.

But that's taken years, and the regulations aren't out yet. We had final hearings on them in August of last year. The comment period on the hearings closed in February of this year, '88. They targeted August for the final rule, but none's come out yet so far in August. Anyway, that led to a number of different things.

I'm also on the occupational health committee of the American Mining Congress, and they meet two or three times a year. I'm on a group called the Environmental Health and Safety Consultation Fund Steering Group. This is a group of the chairmen of the different environmental health and safety committees to coordinate what they call a consultation fund, that is, a fund for consultants and for research work, to commission research work. Each committee makes up its own list of requirements, and then we put them all together into this one fund. These generally require special assessments of the membership, so that's why we have to--

Chall: So you actually screen those requests?

Swent: We screen these, and then try to keep within the funds that they've asked for, and see that the work is properly done.

Studies of Uranium Miners

Swent: Outside the Mining Congress, I've become an "expert" on the U.S. Uranium Miners Study. I've followed that study right from the early days, since the 1960s, and in recent years under the Freedom of Information Act, we've been able to get a tremendous amount of data from them. And actually, at this point, we have now put out studies in advance of NIOSH because we've been able to analyze the data and put it out. We submitted it in the hearings. This is a result of my activity which Homestake pays me for, but it's not a Mining Congress activity. Following that study has been sort of a personal interest.

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Immediate Past Chairman
Honorary

February 26, 1993

Mrs. A. D. Taylor
1450 Piedra Drive
Walnut Creek, CA 94596

RE: American Institute of Mining & Metallurgy Scholarship

Dear Mrs. Taylor:

On behalf of the American Mining Congress (AMC), enclosed please find a contribution toward the American Institute of Mining & Metallurgy scholarship fund for James Waterman. AMC's donation is being sent in memory of Langan W. Swent who recently passed away.

Mr. Swent worked tirelessly for many years in the mining industry and held numerous committee positions within AMC. He was a true friend to the industry whose sharp mind and attention to detail will be sorely missed.

If you have any questions, please do not hesitate to contact me at 202/861-2876.

Sincerely,

James E. Gilchrist

James E. Gilchrist
Vice President

Enclosure

Chall: Do you still follow those people?

Swent: Yes, I get the data from NIOSH. Under the Freedom of Information Act, they have to give a lot of it out. They're updating that study now, and I'm trying to get that data.

I serve on an advisory committee to the University of New Mexico Epidemiologic Study of Lung Cancer among New Mexico uranium miners. This is a separate study that originally started out funded by industry and the university, and then as the industry has died off and there's no funds available from industry now, we've gotten funding from DOE, Department of Energy. The advisory committee meets every year or two to review how the study is progressing. It's a long-term study; it's going to take twenty years or so to have results. I think we're going to have another meeting here in November or December of this year.

The Trans-Uranium Registry

Swent: I also serve on the advisory committee of a group called the Trans-Uranium Registry, and that's funded by the Department of Energy and run by the Hanford Environmental Health Foundation in Hanford, Washington. The purpose is to learn as much as we can about the distribution of uranium and the trans-uranic elements in the body, as to where these elements go when people are exposed to them. There is very little knowledge on that. This knowledge is obtained by detailed analysis of people's bodies after they've died or from autopsies. Some of the meetings are kind of grisly when they start telling you what they do to people's bones and flesh and everything, and all the analytical work.

Chall: Trans-uranium--uranic means what? More than radon daughters, or--?

Swent: Well, it means elements that are heavier than uranium. Uranium is the heaviest naturally occurring element. All of these things that have been created like plutonium, americium, and other heavy elements that are heavier than uranium have been created by man, and are called trans-uranium or trans-uranic elements. They have atomic weights that are heavier than uranium. But they've not been found in nature, although they probably did exist at one time. They've all decayed away.

Chall: And so now there's some effect of this on our bodies and health?

Swent: Well, a lot of these things have been created in the weapons industry, like plutonium and americium-241, and things like that.

The Department of Energy, which really does all this research work and runs many plants, including the ones up at Hanford, is exposing people to these trans-uranic elements, and then they want to know what the effects are. I was put on the committee. At one time, they had a uranium registry, and a trans-uranium registry. I was put on the uranium registry, and then they combined the committees to save money. I'm there really for the uranium industry, because I know where many uranium exposures occurred.

So those are the types of things that I'm doing.

Chall: Keeps you rather busy, I would think.

Swent: Yes, it does. It's as much as I want to do at the moment. In fact, I'm not getting as much done as I'd like to get done.

Chall: Do you find that you like what you are doing or do you want to do other things?

Swent: Well, I've got a lot of unfinished ones. As I mentioned a while ago, I wanted to go back and finish that Dr. Bell study on asbestos. I haven't had time to go back to that. That's probably the biggest unfinished piece of business I have.

Chall: In the meantime, you do a little traveling around to see your children in various parts of the United States?

Swent: Yes, we've taken vacations. We've taken several major trips abroad since I retired. Two to Europe, I think--three maybe. And up to Iceland and down to New Zealand, over to Bangkok and Hong Kong. We went to China in 1978; that was before retirement. Had a three weeks trip there. Right now, with what I have I'm trying to put together, and it's a little bit difficult, a trip to Czechoslovakia. The Czechoslovakians recently published a new paper on radon daughters, and their mining experience with this. I'm trying to put together a trip to go to Prague and talk with the authors of the paper. I did that once in 1985, I think, met with them, and since they've come out with this new paper, I have more questions.

Chall: You're not sure you're going to get there, is that it?

Swent: Well, there are two or three other people. If it were up to me alone, I'd get there. But I'm trying to coordinate it with two or

three other guys that want to go, too. It's a little difficult.[1]

Chall: I think we've done very well with the oral history, and you will soon be getting the transcripts. I appreciate the fact that you've done so much research on your own which I know that I never could have handled.

Swent: Okay.

Transcribers: Elizabeth Eshleman and Shannon Page
Final Typist: Shannon Page

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[1]In November and December 1988, Langan Swent returned to Prague with Doug Chambers to review and update their information on underground radiation.

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Western Mining in the Twentieth Century Oral History Series

Eleanor Herz Swent

ONE WOMAN'S EXPERIENCE WITH THE ROLE OF WOMEN IN THE MINING COMMUNITY

Interviews Conducted by
Malca Chall
in 1994

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Eleanor H. Swent, 1992

INTRODUCTION to Eleanor H. Swent, by Laura Madsen

There are some people in our lifetimes who touch us and those around us in such a unique manner that we may not even recognize that touch until later. The touch is quiet and unobtrusive, filled with compassion and genuine caring. These individuals may be a neighbor, someone active in the community, or a friend. Lee Swent is such a person.

Lee has a strong sense of obligation to her world and has made her contributions felt in many ways. She has always been actively involved with not only her family, but also with her friends and the community in which she lives.

One very important facet of Lee's world has been education. The education of her own children was of the utmost importance, and Lee played an active role in their school life. However, the importance of education extended beyond her immediate family. Early in their marriage, when she, Lang, and their young children returned to Lead from Mexico, they brought Mexican teenage friends to live with them in order that these boys would have the opportunity to live and go to school in the United States. At her community schools, she helped children other than her own with encouragement, and in some cases with financial aid so that they could obtain a college education. After she moved to California, she taught English as a second language.

Lee's church and faith have been another important part of her life. She taught adult Sunday School and Bible study classes. Twenty-five to thirty years later, she is still remembered appreciatively and commented upon by those who participated. (I regret that I did not take advantage of that opportunity.)

Both Lee and Lang were involved in the politics of the Grants community. They played a part in establishing the Grants Hospital. The fact that she and Lang were fluent in Spanish provided an advantage in many situations.

But what makes Lee special is her kindness, loyalty, compassion, and involvement with nearly everyone with whom she comes in contact--family, friends, employees, neighbors--which have given her a very large extended family. She has an amazing intuitive ability to see a need and quietly help in an unobtrusive way. Her help is given in such a natural manner as to not leave the person involved uncomfortable. A personal example of her compassionate help was during the illness and subsequent death of one of our children. Not only was Lee a true pillar of support, she extended herself as far as doing our weekly grocery shopping (on double-stamp day, no less).

Lee is fortunate to have the ability to step back and look at a bad situation and not let it keep her down. She makes the best of things and that's the way it usually works out--the best way.

Laura Madsen
Neighbor and friend in Lead, South Dakota, and Grants, New Mexico
Wife of Roger Madsen, Mechanical Engineer, Homestake Mining Co.

September 1994
Grants, New Mexico

INTERVIEW HISTORY--by Malca Chall

As one reads Langan Swent's oral history, there is no doubt that he was an exceptionally busy and, at times, harried executive. But he was also a husband and father who cared deeply for his wife and children, whom we meet from time to time in his narrative. Lang's story, however, is primarily about the mining industry, about labor relations, management problems, and about the techniques of mining gold, silver, uranium, copper, and lead. One wonders what it must have been like to be the wife of a man with never-ending responsibilities, and to raise four children in remote mining towns, while simultaneously playing an active community role. How did they build friendships with other mining families? What were the responsibilities beyond housekeeping and child care in such diverse communities as Lead, Tayoltita, and Grants? And what did it mean, finally, to locate in the sophisticated San Francisco Bay Area? There are many questions one could ask of women in these circumstances.

So, I decided to interview my colleague, Lee Swent, whose comments, I knew, would broaden and enrich the history of the mining industry, as well as Langan Swent's exceptional memoir. Lee initially demurred, but ultimately agreed to be interviewed, although she had not yet read the transcript of Lang's interview. The result is a unique fragment of a broader chronicle. It expresses how one intelligent, strong, and motivated woman managed her family, community, and personal responsibilities.

Lee grew up in Lead, South Dakota, where her mining engineer father was a chemist, and later chief metallurgist, with the Homestake company, and her mother, a college graduate with a geology major, was a homemaker. Although she had a pleasant life as a child in Lead, when she went East to attend Wellesley College she expected that she would not return to Lead or become part of mining life again. But fate determined otherwise. She met Lang shortly after World War II. He was working in Lead, and she was home for a vacation before attending the University of Denver where she received a masters degree in English. When Lang was assigned to Tayoltita as assistant manager of the San Luis mines they decided to marry.

Lang's father took her aside and offered some important advice: "It will be very difficult, and you might not make it. A lot of women don't. If you make it you will have a marriage that nothing can ever shake." And that, Lee reflected, "was true in his case and certainly in ours".

Lee, as a young bride, went to Tayoltita as had her mother-in-law a generation earlier. Lee, however, arrived by plane; for her mother-in-law it was a four-day trip by mule from Mazatlan. Lee learned Spanish, gave birth to three children away from home and husband, educated them at home, participated in the activities of the San Luis staff and the Mexican community, and learned to keep house in challenging surroundings. She recalls these seven years with pleasure, including the time she sent for and then surreptitiously translated Planned Parenthood material into

Spanish so that the inquisitive Mexican women could understand how it was possible to space one's children, as American women did.

From Mexico the family moved to Lead for a few years, and then they transferred to Grants where another totally new experience awaited Lee. There for a decade she worked in Republican politics, soaked in all she and her children could learn about Indian and Southwest culture, entertained innumerable guests, and broadened her circle of friends. Then she moved again--this time to Piedmont, California. Here she formed new alliances and started her career, first as a teacher of English as a Second Language, which led her to interview her Asian refugee students and to publish articles on their lives.

It was only a short step to realize that there were rich stories to be told in the field of western mining and that as the wife of a mining engineer she had the background to collect them. With the active support of Langan, in 1985 Lee joined the Regional Oral History Office for the express purpose of documenting contemporary developments in the mining industry. She serves as director of the Western Mining in the Twentieth Century Oral History Series.

I interviewed Lee for two hours on three different occasions in May, June, and July 1994, in the Swent home, either in the library/study, or in an upstairs office. An unfortunate (human) recording error erased much of the second interview, necessitating another.

Lee reviewed the lightly edited transcript, revising a few sentences for clarity and correcting the spelling of names and places. Otherwise her transcript is much the same as it was recorded. She also carefully checked the index to Lang's transcript (to which hers is appended), correcting spelling and advising on the organization of items.

Lee, much like Lang, is committed to perfecting tasks, and interested in people and cultures other than her own. As the oral history indicates, she is bright, articulate and thoughtful.

Her longtime intimate friend and neighbor, Betty Madsen, agreed to write the introduction. In it she has provided a warm and deeply felt account of Lee as an individual and as a community member. The introduction is a tribute to the kind of friendships which the Swents have inspired.

Malca Chall
Senior Editor

May 17, 1995
Regional Oral History Office
The Bancroft Library
University of California, Berkeley

Regional Oral History Office
Room 486 The Bancroft Library

University of California
Berkeley, California 94720

BIOGRAPHICAL INFORMATION

(Please write clearly. Use black ink.)

Your full name Eleanor Martha Herz Sweent

Date of birth June 4 1924 Birthplace Lead, So Dak.

Father's full name Nathaniel Herz

Occupation Metallurgist/mining engineer Birthplace New Haven, Conn.

Mother's full name Janet Kimpston Herz

Occupation Housewife/teacher Birthplace Volga, Iowa

Your spouse Langan Waterman Sweent

Occupation Mining engineer Birthplace Oakland, CA

Your children Jay Kimpston Sweent, Christine Waterman Sweent Byrd, Richard Langan Sweent, Jeannette Frazier Sweent Cauethon

Where did you grow up? Lead, South Dakota

Present community Piedmont, California

Education Wellesley College, B.A.
University of Denver, M.A.

Occupation(s) Housewife/volunteer; teacher, Oakland Adult School, Laney College; interviewer-editor, Regional Oral History Office

Areas of expertise English as a Second Language, Oral History

Other interests or activities Reading, knitting

Organizations in which you are active Piedmont Community Church, Ladies Home Society, PEO, WAAIIE

XII CHILDHOOD IN LEAD, SOUTH DAKOTA

[Interview 1: May 25, 1994] ##[1]

Chall: I thought today we'd start with Lead, growing up in Lead. Were you born in Lead?

Lee S: Yes, I was born in Lead, in the back bedroom of my home.

Chall: Is that so?

Lee S: Right. [laughter] For some reason, they didn't--the Homestake hospital there I guess did mine emergencies, but women had their babies at home.

Chall: With a midwife?

Lee S: No, no, a doctor. And the doctors made house calls, of course. Dr. Robert Fleeger and Dr. Paul Ewald were two principal doctors, and they did all of their calls on horseback. For many years--Dr. Ewald rode a horse up until 1940, I think, until the Second World War. He enjoyed riding, and always rode a horse.

Parents

Chall: What was your father's name?

Lee S: Nathaniel Herz. He came out to Homestake from Connecticut in 1911, I think assistant chemist was his title.

Chall: As a young man in 1911?

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[1]## This symbol indicates that a tape or tape segment has begun or ended. A guide to the tapes follows the transcript.

Lee S: Yes. He was born in 1889, so he was just twenty-two. He had graduated from Yale, and had gotten his mining engineering degree there, the equivalent of a master's, and was an instructor and doing graduate work at Yale. His professor recommended him for this job. He had worked summers in Globe, Arizona, and in Flat River, Missouri, and had fallen in love with the West. When this job opportunity came at Homestake, he came out to look it over and stayed, and never left. That is, he worked for Homestake from then on.

Chall: And always at Lead?

Lee S: Yes. He became chief metallurgist, and really enjoyed his work. He loved the romance of being out West. It was interesting, because my mother was born on an Iowa farm, and she graduated from the University of Iowa as a geology major, and met my father on a summer field trip when she was out in the Black Hills with Professor Joe Runner on his annual field trip. He and my dad had become friends through the years, and Dad came out to their camp to visit Joe Runner, and fell in love with my mother, Janet Kimpston. So that's how they met. She then, after she graduated from the university, she taught school in Iowa for a couple of years.

But to her, this was kind of a big town. Lead at that time was a big booming town. They were married in 1923, and it was an industrial town, of course. Interesting, because to my dad, it was living out in the wilds; to my mother, I think it was living in town. [laughter] Dad often referred to it as "the village", and Mother would get a little bit provoked. She didn't like it when he called it "the village". Because Lead in those days was <u>the</u> big, prosperous city, and it was the center of all the activity in western South Dakota. So I grew up thinking that I lived in a very important place. I didn't feel that it was the backwoods at all; it was a terribly important place.

Chall: How big of a city was it then? Do you have any idea what the population was?

Lee S: The population fluctuated, of course, but I think it was around 7,000 in those days.

Chall: Seven thousand? Isn't that interesting, because that seems so small now.

Lee S: But it was one of the biggest, and most viable communities in western South Dakota; maybe in the whole state.

Chall: Primarily would you call it a company town?

Lee S: Yes, quite definitely.

My father was one of the very few--in fact, he was the second university graduate hired at Homestake. His boss and he were the only university graduates for a number of years, until some people came in from Alaska. After the Treadwell Mine flood, some mining engineers came to Lead who had also been university-trained. So there were very few men in the town who had university training, and very few women.

My mother was the only staff wife who was a university graduate, and she was very proud of this. Of course, there were schoolteachers; the school people had college educations. So my mother's friends were, I think largely, the schoolteachers, because her education meant a lot to her. There was a little club--their social life centered on the C & G Club, which stood for Cap and Gown. They used to have dinner parties, and they dressed for dinner. They wore formals, long dresses, and they had elaborate dinners. I remember the preparations for these dinners were very elaborate.

Chall: In the C and G, were the other women married, the schoolteachers married?

Lee S: Oh, yes, this is a couples' club. The schoolteachers--no, they must have been former schoolteachers, because--

Chall: Yes. I wondered whether women schoolteachers in those days could be married and still teach.

Lee S: No, you're right, they couldn't. These were the wives of men schoolteachers. And they played bridge, and they danced, and there was a lot of social life, and it was quite elaborate. As I say, very dressy. The men wore tuxes and the women wore formals. I remember fancy butter pats and flowers and candles, the whole works. So as I say, I grew up not feeling that I was in a back water at all, although I was.

There was no drinking. My parents were teetotallers.

Chall: Oh, they were, both of them?

Lee S: Well, Dad I think only because of Mother. [laughter] But most of their friends didn't drink, either. This was Prohibition, and there was no drinking.

Chall: Oh, yes, that would make a difference.

Lee S: No drinking ever.

Subtle Class Distinctions

Chall: Did you feel that there was a class structure?

Lee S: In Lead? Well, when I was going to school, I would say the distinction was, yes, we were aware that there was a difference between those who worked underground and those who didn't. I think that was part of the distinction. It kind of came out in food. I know I used to feel kind of left out of things because we didn't eat lunch meat. There was a lot of talk at school of lunch meat, and I remember feeling sort of out of it. [laughing] Packing the bucket for the fathers to go to work was kind of a ritual in some homes. Also, my father didn't work shifts, and that of course made a big difference in people's lives. If your father was on night shift, things changed in your household. So in the neighborhoods, the people who worked shift were a little--their life was different.

Chall: So the neighborhoods weren't segregated?

Lee S: Not at all, no. Everybody was all mixed up. And there were lots of my school friends who were speaking another language in their home, but they spoke absolutely un-accented English. In school, there was no bilingual education, and they spoke perfectly good American English in school, but many of them were speaking Slavonian or Italian or Finnish, Swedish, Norwegian--there were lots of other languages spoken at home.

But no, we were all--there wasn't any distinction among the youngsters. We all played together just fine. Some difference between the Catholics and the Protestants, because they couldn't eat--they had to eat fish on Friday. Again, it seemed to be food that made the difference [laughing], and they had to go to church on Sunday.

Chall: But didn't you? What was your church?

Lee S: Methodist. We belonged to the Methodist church. It didn't seem to be a matter of caste, but it did make a little difference in your schedules whether you went to mass or to church.

Chall: How many Protestant churches were there in Lead?

Lee S: There were lots of Protestant churches. I think there were five Lutheran churches. There were two Finnish Lutheran, one Swedish, one Norwegian, and one regular English. These had their services in those languages. And the Slavonians, there was a large community of Slavonians who were either Roman Catholic or

Episcopalian. Some of them I think who had been Orthodox chose to be Episcopalians rather than Roman Catholics.

Chall: Close enough?

Excellent Schools

Lee S: Right. But one of the interesting things--the Lead schools at that time were considered very good, and they always won lots of state prizes. As I think of it now, I realize that we, of course, didn't have a lot of money in the school system, but they did some awfully good things that didn't need a lot of money. We had a very good music department. There was a teacher named Miss May Martin, who in high school actually put on an annual production. We did operas. One year she did Verdi's Il Trovatore, and I was a gypsy in the chorus. We had a few good singers who did the leads. Then another year did an operetta called The Bohemian Girl, I think, which is a standard operetta. One year we did something Mexican. Every year in high school I was in this sort of production.

My part in all this: I had a full skirt that served every year. I was in the chorus, I was a gypsy, or an Italian peasant or a Mexican or whatever; I could always dig out this skirt and be in the chorus. But it was wonderful. We rehearsed every night for months, and worked terribly hard on these musical productions. I don't know how good they were, but they acquainted us with good music.

Chall: And the whole community then would come out?

Lee S: Oh, yes.

Chall: Of course, it was the show of the year in Lead.

Lee S: Yes, and the social life that went into the rehearsals and all. It was wonderful.

We also had good instrumental music--every year there was a West River Music Festival for the western half of South Dakota. The Lead Glee Club and the Lead Band and Orchestra usually won the prizes. I was in glee club, and several of my best friends were in the band and orchestra. We also did a lot of public speaking. Karl Mundt was the senator from South Dakota for decades, and he founded something called the National Forensic League. Youngsters, most of us--it seems a lot of us participated in these speech contests. We had debate, and something called extemporaneous

speaking, where you just drew a topic out of a hat and had to give a speech on it, and dramatic readings of various kinds. There were local contests and regional, county, and state contests. Eventually, I went to the national contest once in California. This speaking experience, I think, was good training. Many of the school children participated in this, and it was very good training.

Chall: I get the feeling of a vibrant kind of educational system.

Lee S: We did have a good school system, and I am still in close touch with many of my school friends, that I went to school with from the very beginning.

Chall: Was there one high school in Lead?

Lee S: One high school. There were 130 in my graduating class, and we had sixty-five at our last reunion. People came from all over the world to our class reunion. We're still close. It was a marvelous school experience. And as I think back on it, my best friends, some of their parents were miners and some were staff people, and one, his father was the undertaker. Just the whole spectrum, and we were all friends together.

Chall: Did many of the children of underground workers go on to college, do you know?

Lee S: Many of the boys did. Most of the girls got married right out of high school to their sweethearts. A few of us went on to college. I was the only one that went far away to college, I guess. And I didn't realize for many years why a lot of my close friends in college were foreign students. I think it was because when I went from South Dakota to Wellesley in 1941, I was really a foreign student there. [laughs] My culture was very different from that of the typical Wellesley student at that time, and I think I felt more comfortable with the foreign students than I did with the girls from New England. I didn't know anything about being a candy-striper or a debutante or going to fraternity house-parties; things that were so important to many of my classmates.

Chall: How did you happen to go to Wellesley? That is a long way off.

Lee S: Well, of course, my father being a New Englander wanted me to go to Wellesley. And mother did too. It's often said that every Iowa mother dreams of having her daughter go to Wellesley. I graduated from high school in 1940, and then I went for one year to Dana Hall School, which was a lifesaver, I'm sure. I got my homesickness and a lot of my adjustment done at Dana Hall.

Chall: Where was Dana Hall?

Lee S: In Wellesley, Mass[achusetts], and then I went on to Wellesley College.

Going back to Lead, a couple of the things that I guess were probably important: when I was, I think six, there was a fire, a mine fire, the Ellison Shaft burned, or the hoist building burned. I think there was even a fatality; somebody was in the cage, and it burned him. But I do remember that as being a very dramatic episode. The whole town, of course, was out watching this fire.

The Ku Klux Klan

Lee S: I also have a dim recollection as a very small child of a Ku Klux Klan cross-burning, which we saw from our house. We could see it across the little gulch there. I remember my father was absolutely furious at it, and wouldn't explain it to me. I was very little, I think I was just maybe three or four years old. I knew that he was very, very angry. He didn't discuss it with me, but I knew it was a terrible, terrible thing. I also knew that he knew some of the people, he was aware who some of the people were that were doing that.

Chall: And if you were to go back into the newspapers, do you think it--?

Lee S: Well, I have. In the interview that I did with Clarence Kravig, he discusses this at some length.[1] There was an uprising of the Ku Klux Klan in those days.

Chall: Against whom?

Lee S: Evidently anti-Catholic. It was Masons who were involved, and my father was a very active Mason. I guess that's what made him so angry, these people that he liked and associated with were involved in this. I don't think I've ever seen him so angry as he was that night. I don't think anything ever came of it, but they were burning a cross on the hillside. It made a big impression on me, because I knew it was so terrible, but I didn't know why.

Yes, the lodges were very active there in Lead, and women's clubs. My mother belonged to the local Women's Club, which is part

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[1]See Clarence Kravig, Homestake Mine Workers, Lead, South Dakota, 1929-1993, Regional Oral History Office, University of California, Berkeley, 1995.

of the National Federation of Women's Clubs. I should mention that I went to the Phoebe Hearst Kindergarten, which my children later went to, and this was one of the first kindergartens in the nation, the one that Phoebe Hearst established in Lead. It was endowed by her and only became part of the public school system I think in the 1950s.

Chall: In Lead?

Lee S: Yes. She'd endowed it in the late 1800s, I think. We started at three, we went to kindergarten.

Chall: Three?

Lee S: Yes. And the kindergarten was in the basement of the Episcopal church.

"Civilizing" and Other Influences

Lee S: There was some international awareness, apart from the fact that there were so many people, workers in the town who came from other countries; when I was growing up, there were a lot of overseas visitors. There was a nurse, Grace Staple, from Lead who was a medical missionary to Japan, and she would come home every year on leave and give a program and show people her kimonos and things like that. This was quite an influence on me; it was very romantic. We had visitors. One time, a group of students from Witwatersrand University in South Africa, and they came in the winter, and just went crazy over the snow. They walked through the streets shouting and yelling and throwing snowballs, and that was exciting.

I remember once we had a French engineer who came to the house for dinner, and my mother had these beautiful, tender rolls, and he took one and smashed it in his hand! [laughter] He said he liked hard rolls.

Chall: Dear me. [laughter] Quite a guest!

Lee S: I don't think I was at the table, but I did remember that my mother was kind of laughing about the way he treated her nice, tender rolls. So we were not the isolated community that you might think. There was a lot of coming and going.

Chall: Were these missionaries part of your Methodist church mission group?

Lee S: Yes, I think this woman had gone as a Methodist. She was a nurse, actually, who had gone to Japan. There was a ballet teacher for a few years who taught ballet to a lot of the girls, and I was one who studied. So there were things there that made life fun.

Chall: That's interesting, because if you read about mining towns in earlier periods, it was the women who brought in a certain kind of culture, and they really believed in it.

Lee S: Yes. It was what we would call genteel. I think it was really kind of ridiculous when you think of it, but they did work terribly hard at bringing gentility to the community.

Chall: Yes. Look what you were all able to get--not just you, but all these children in the schools who could participate in these kinds of activities.

Lee S: They tried very, very hard to be civilized, I guess. One of my father's favorite words--sometimes I remember he would say somebody was not very civilized. Civilization was something you had to strive for out there.

Chall: Somebody coming from the Northeast, I think would certainly have a different point of view. And your mother's family, had they come from another part of the country?

Lee S: Her father was born in Canada, and her mother's family had moved west from Pennsylvania, to Ohio, to Iowa as farmers. So it was a definitely rural background there.

I should say one thing which I think was very influential on me: There were people who had come to Lead who had been working in Latin America. I remember them, they were kind of something that I was very much aware of. There was a man who had married a Peruvian Indian woman, and she had a grinding stone and would grind things out in her back yard. Of course, people in Lead were just astonished by this. Corn, of course, probably--something, I don't know what, but everybody was terribly amused, and she didn't speak English. They were very kind of pitiful, as I look back on it now, but people were interested in this and I think pitied him for what he'd gotten into, maybe. I was much aware of that.

I was also very much aware of a couple of women who came back, with great pretensions, because in Latin America they had had servants. One woman in particular, her father had been a butcher in Lead, and she had graduated from Lead High School, married a mining engineer, went off to Peru, and came back after, I think maybe six years. He may have had a couple of contracts down there.

She came back, and just [laughs] pretended that she'd gotten so used to servants that she didn't know how to do anything at all.

She and Mother had the same cleaning woman. One day, the cleaning lady was at our house, and this other woman called her and said that she had been invited to a luncheon and her dress needed pressing, and she wanted Caroline--and Caroline did it. She walked quite a distance to this woman's house, and put up the ironing board and pressed her dress for her, and then went back to Mother's house. Mother was really put out by this, because this woman--she'd grown up in Lead, and obviously knew how to put up the ironing board and press her dress. [laughter]

Chall: She was putting on airs?

Lee S: But she said that she could no longer do this, because she'd gotten so used to all those servants. I remember that this kind of pretension was something that later I worked very hard not to get into, because people were very touchy about it there.

Chall: When you got back to Lead after living in Mexico?

Lee S: Yes. There were women, and I think some of the men who had worked overseas had this problem in the mines, too. Somehow, I was made aware of this.

Chall: Yes. Those are significant influences.

Lee S: Things that you remember later.

Chall: Your cleaning woman, would she have been the wife of one of the miners?

Lee S: No, actually, her husband was a shoe repairman there in Lead. But Mother always had help. She had for many years country girls, farm girls would come in and want to live for board and room and go to high school. So she had a succession of high school girls, farm girls. A couple of them were Finnish girls, I remember, who lived way out in the country and came in and lived there, and would help with the cooking and the dish washing and on Saturday did the housecleaning, and that sort of thing, while they went to school.

Chall: Good arrangement.

Lee S: There were lots of women available to do work.

The Depression

Lee S: I should mention the Depression. Homestake was the only major employer in South Dakota during the Depression. The price of gold was good, and Lead really boomed during the Depression. It was not affected, except that I have terrible memories of the long, long lines of men waiting at the employment office. South Dakota had both the Dust Bowl and the Depression, and farmers and miners came from all over and just stood in line for hours hoping to get work. Homestake did hire everybody they could, but then men would come around to the house begging for food, and Mother served I'm sure hundreds of men fried eggs and bread and coffee. Sometimes they would do a little something, but there wasn't anything for them to do, really. They'd mow the lawn.

But Lead was not--we were not affected by the Depression directly, but it definitely had an emotional effect. A lot of new youngsters came into the school because their fathers came in. People came from Missouri; there were quite a few people from Missouri who were new in town. There was money in Lead, but we were certainly aware of the Depression and the Dust Bowl.

Chall: What kind of shopping was there? It was a company town.

Lee S: There was the Hearst Mercantile Company, which was a store that wasn't really a company store, but people could charge things there, and I think the bill could be paid from their wages. It was a very good store. They had awfully good quality things, very good. It was a general store; even had groceries. But it also had good furniture, clothes and shoes--all good quality. Although we did--once a year we would go either to Denver or to Chicago or someplace. We always went to my grandmother's farm in the summer, and often several years drove from there into Chicago and would buy my winter shoes and winter coat and those things. Or Denver.

Chall: So you did get out and see a different part of the world while you were growing up?

Lee S: Once a year, we got out, and a couple of times we went back to New England.

Chall: Yes, I wondered whether you did that.

Lee S: But that was kind of unusual. I think that set me apart from my friends. Most of them did not do this. They had grandparents nearby, and didn't do that.

Chall: Did your grandparents from Iowa come to visit you?

Lee S: Never. They never did.

Chall: Nor from the other--?

Lee S: Well, my grandmother from New Haven came. My grandfather died before I was born, but she came a couple of times. But she didn't like it much. [laughter]

Chall: I see.

Lee S: And my Iowa grandmother never came. She just stayed on the farm, and we visited her every summer.

Chall: What were your impressions of the Iowa farm?

Lee S: Oh, I loved it. I just loved going to the farm. And of course, I was the city cousin coming to visit. I had lots of cousins around there, and they just were very impressed with me because I lived in town. I loved to go there, and go barefoot, play in the hay and all those things.

Chall: Oh, yes, so it was a real great, fun experience.

Lee S: Yes.

Chall: When you went to college, or when you were in high school, what were your interests and what were your plans for the future?

Lee S: My plan was to get far away from my hometown. [laughing]

Chall: Why is that?

Lee S: I don't know that I had a plan really, but I was not--I went through a stagestruck phase, and I wanted to be a writer. I just didn't really ever think I would end up living back in Lead, certainly, or in a mining town. It wasn't something that I ever even thought of.

Chall: Why did you think otherwise? Why did you think that you might prefer to live away from Lead?

Lee S: I don't know as I even thought where I wanted to live. I don't think I thought in those terms. I knew I had to go away to college; there was no college there. I knew that I would go away, and I guess I just sort of assumed that I would probably stay away. I certainly did not expect to meet my husband there.

The Effect of World War II on Lead ##

Lee S: Of course, the war--I don't think I had very long-term dreams at that point. I graduated from high school in 1940, and we were very much aware of the imminence of the war. So many of my friends went into the service right away. The South Dakota National Guard was called for duty, supposedly temporary duty, in the fall of 1940. Most of those men served from then until 1945. We were very much impacted by that. A lot of the high school boys were in the national guard. Some of my classmates went directly from high school into the army, and then served five full years. They went to North Africa, to Europe, and then to the Pacific and never even got back. So a number of them, of course, were killed. I think really I just was looking for the end of the war more than anything.

Chall: Did it affect your college in any way? Of course, Wellesley is a women's college.

Lee S: Yes. Well, no, not directly, except that for the first time there were men at Wellesley, because they did have a navy training program there. But what happened then was that in '42, I guess, WPB Order L208 closed the mine.

Chall: What was this?

Lee S: It was the War Production Board Order L208. That closed the mine, and my father was one of the few people who I guess was needed--I sort of resented it at the time. I wished he had not done this. But he stayed there; some of the top people did stay at Lead to oversee. They maintained the mine just to keep it from flooding, and they had a hand grenade factory. They turned their shops into making hand grenades. So my parents stayed there. I just hated going home for vacations, because most of the houses in the town were boarded up, and there weren't any young people there. There was nothing to do.

I was really miserable. I would go back to college, and my friends were telling about all these wonderful things they had done, girls were all working in hospitals and doing war work, and one thing and another, and my vacations were pretty dismal. I was very unhappy about that. Mother's health wasn't good; I suppose that's one reason they stayed. Because I was an only child, my parents really wanted me to come home for summer and Christmas vacations, and I felt I wanted to do that, too, but it was not a good time. One Christmas, we were taking the decorations off the Christmas tree when we learned that one of my classmates and

friends, Jim De Marsche, had been killed in the Pacific. I think of that every time I decorate a Christmas tree.

One summer I worked for a few weeks on a Methodist Church service project around the Willow Run area in Michigan, helping with summer programs for children whose parents were working in the defense plants. It was very interesting; it was my first exposure to Appalachian people. The summer before my senior year and the Christmas of my senior year, I worked on an independent study project on Sioux Indians, and spent some time on the Rosebud and Pine Ridge reservations in South Dakota, just observing and learning what I could. I look back on it now with some embarrassment, because I was so ignorant. There were several Indians in school with me, some of whom were good friends--Jim De Marsche was one--and I realized that I knew very little about their background. I really enjoyed working on that.

Going back to my father--some of the men got very interesting jobs in Washington, and I don't know why my father elected to stay in Lead, because he had loved working in Washington in the Chemical Warfare Service during World War I, but--.

He was working; he was doing a lot of traveling around. He went to Colorado to the vanadium prospects, and also up to Idaho. He was doing a lot of traveling and working, and I think it was a good time for him in that sense. He went to Mexico, down in Baja California, where Homestake had something going on. He had to get a security clearance, and he was doing metallurgical work on vanadium. I think he felt busy and stimulated; he wasn't just sitting there with the closed-down mine. But based there and living there. It was not happy for me.

Chall: Dismal. When the mine closed down, the town closed down?

Lee S: Pretty much. Just a skeleton staff there. So it wasn't a happy town for me.

Chall: What was the general attitude prior to the war in Lead? Was there a strong anti-war movement?

Lee S: I think so. Looking back on it now, I think we were very isolationist and very much opposed to getting into the war. I remember America First--

Chall: I just wondered how strong that might have been in your community.

Lee S: I think it was pretty strong. But once the war started, of course, that was the end of isolationism.

Chall: Yes, that's right. So you were off in college; what were you studying?

Lee S: I majored in English and English composition, and just took liberal arts, and loved the music appreciation courses, and the art appreciation--those kinds of things. I loved going to the symphony. I loved Wellesley; I just loved every minute of it. I took history and some religion--the religion department was pretty strong at Wellesley. Biblical history, it was called, and I enjoyed some of those courses. Literature. Mostly literature, and French, took French. Just really enjoyed it. Wasn't much interested in science, although I might have been if I had not taken that intervening year at Dana Hall.

I had done well in science in high school, and toyed with the idea of taking chemistry or math or something like that, but in order to get to Wellesley, I had to have straight A's. I knew that. And when I went to Dana Hall, I just knew I had to have straight A's, and so I took the courses that I knew I could get A's in. Consequently, I didn't take the sciences, so then when I went to Wellesley, I was behind in sciences. I did take geology, which I enjoyed very, very much, and considered taking more and then thought, "Oh, no, I should take other things now that I'm away." So I took biology and geology for my science requirements.

Chall: Did your mother try to influence you in any direction? Or your father?

Lee S: Not particularly, except that I think she always wanted me to be a teacher. That was her ideal, the thing that a girl should do is to be a teacher.

Chall: So did you have that in mind?

Lee S: Probably. I think it was just sort of assumed that nice girls became teachers. [laughter] I think that was just taken for granted that that was the nice thing to do. Actually, what I guess I really wanted--I thought it would be exciting to be a newspaper reporter.

Chall: When you were at Wellesley, did you travel about in the East?

Lee S: No, because of the war we couldn't.

Chall: Oh, that's right, you couldn't.

Lee S: "Is this trip necessary?" There were posters discouraging any travel for pleasure. So I did very little except for coming home at Christmas and in the summer. That was a very long trip by train, changing in Chicago. We did go up to Quebec once over Easter vacation. I had friends in New York who invited me there for holidays.

Chall: Was the social life with the young naval people--?

Lee S: We had quite a lot of dates. Of course, MIT was still going strong. There were boys at Harvard, and there was this navy supply corps school on the Wellesley campus. So we had quite a hectic social life, actually. A lot of fellows going through Boston on their way to and from the service. We had a lot of dates. It was an emotional time.

Chall: And blackouts at night.

Lee S: Blackouts, yes. A lot of sadness, of course, because--

Chall: Some of your classmates--

Lee S: Yes, people were getting--a lot of girls were getting married, and some were widowed. The war was pretty immediate.

The First Job and then Graduate School

Lee S: Then I graduated in 1945. I got good grades. At Dana Hall, my best friend was Mary Elizabeth Kinner from Elmira, New York, and I had visited her in Elmira for holidays. The job that I got when I graduated from college was a very, very good job. In fact, I think I got the highest-paying job of anybody in my class. I got a job that paid $150 a month.

Chall: Well!

Lee S: Which in 1945 was a good job. I was hired as the assistant to the president at Elmira College. This was a job that had been held by a Wellesley alumna whose husband came home from the service, so she was leaving. They sent back to Wellesley for another person for this job, which was to assist the president, mostly doing publicity and public relations. It was a wonderful job. I loved it, I loved Elmira.

But the problem was that the president of the college was an alcoholic. In those days, this was something that was kept very

quiet, and I didn't know this, of course, for quite a while. Part of my job was to cover for him when he had been or was on a "bender." He was the kind who wouldn't drink for weeks at a time, and then would go on a terrible bender. In time, this became just an intolerable situation. I was only twenty-one, and from a teetotalling household! [laughs] So I just simply--the whole thing was something I just was unequipped to handle.

He became very abusive to me, because of course I knew his secret. So at the end of the year, he became quite difficult to work with. He was in terrible shape the night of the senior prom; he was in the receiving line and could hardly stand. The next day, the next time I saw him, he kind of took it out on me. It was a very unpleasant ending to a wonderful year. So anyway, I left. It was a very hard experience for me. I learned a lot that year.

So then I went back to Lead, just to kind of lick my wounds for a while and regroup, and thought that then the thing to do seemed to be to go on and get a master's degree. I went down to Denver University. It felt really good to go back West. I realized that I had been away for six years, and that I was ready to come back now. By then, it was pretty clear that I was more comfortable out West, and wanted to stay in the West.

And then, of course, I met Lang.

Chall: Yes. That was a significant change in your life.

Lee S: Yes, that changed it a lot, too. But the timing was right. I had been away, and now I was ready to come back home.

Chall: The University of Denver is in Denver?

Lee S: In Denver. I guess the main reason I went there was because I liked being back West, and I got a good scholarship also, a fellowship, an assistant--whatever they called it. I was a T.A. I worked with Allan Swallow in his creative writing course. He had just started his Swallow Press, and was a wonderful teacher, and had a very good writing program there. He died much too young, or he would have become much better known, I think.

Chall: Were you getting a master's in order to teach?

Lee S: Yes. I liked being in a college administration where I thought that, at least at Elmira, it would have been advantageous to have the master's and be able to teach as well. This is really what I thought I'd like to do, would be to teach in a college, and possibly do administrative work as well, continue with the public

relations. I liked doing P.R. for colleges; I thought that would be a good thing to do.

Langan Lee S: Meeting and Marriage

Chall: So somewhere along the line, Lang turned up in Lead.

Lee S: I met him just when I first got back to Lead. One of my best college friends, Christine Peterson, lived in Binghamton, New York, which is near Elmira. She had never been out West at all, and she had been working for a bank in New York City, and got tired of that. So she came out to Lead to visit me.

There weren't many young men around. There were a few who had come back from the service. Jim Noble was there. He had been at Harvard and had known Chris and me. We got together a little group one evening, and Dad had met Lang and recommended him highly. He said, "This nice young engineer, he seems like such a sensible, nice young man." Of course, that wasn't what I was looking for exactly! [laughter]

Anyway, Dad invited him to come, and introduced us, and I thought he was nice. I thought that he was sort of Chris's date, and while Chris was there visiting, Jimmy Noble and Lang and Chris and I went out a few times. Then Chris went away, and Lang kept calling me. So that was it. It was pretty clear very early that we had a lot of good things going for us.

So then he was coming down to Denver on his long change weekends, when he was working in the mine in the training program. He's probably gone over this in his oral history, but he would come down every second or third weekend on a long change, when he had time to come down. Over spring break, I came out here to California and visited his family, and liked them.

Chall: I see. That's always a significant step.

Lee S: Right. I had met them at Christmas time when they came to visit him. Then at the end of May, he came down to Denver and said that he'd taken this job beginning July 1 in Mexico, and we could either get married then or wait a year and get married when he had his first vacation. We decided there wasn't much point in waiting, so we got married in a couple of weeks.

Chall: When was the date of that?

Lee S: We were married June 22, 1947. We got engaged over Memorial Day weekend, so that was pretty quick to throw a wedding together. But it worked. I decided to just stay in Denver and finish my master's, so he came down to Denver, and we honeymooned for a few days, and he went on to Mexico. I finished the master's at the end of the summer and also got my permanent resident papers for Mexico, which I couldn't apply for until we were married. That way, once I got down there at the end of August, I could stay. I didn't have to come back to get papers. So that was that.

The Qualities of Langan that Impressed Lee

Chall: My impression of Lang when I worked with him was that he had a great spirit of adventure, and that he had a lot of intellectual curiosity. He was in a way--and I don't know whether you'd call him an intellectual, but he had a tremendous mind and a great intellectual curiosity. Nothing seemed to go by him. He was hard-working, and he was very devoted to his family and friends. Now, sometimes this kind of devotion, I think, shows up as you grow older. But his relationship to his family always seemed to be very close. Is that something that--these attributes of his personality that I see, were those what you saw then?

Lee S: Also, he really I think enjoyed that training program at Lead. He was working underground, and it was--I could tell that he had a wonderful relationship with the men that he worked with. This was so special about him, he always respected the people who worked under him, which isn't universal. [laughs] He really respected the people he worked with. I could tell that. He was working with people that I had known all of my life, and I guess I was a little touchy about it. I wanted him not to feel superior to them, and he didn't. I think this is one of the special things about him, that he really respected everybody. He was never good at apple-polishing or that kind of thing.

Chall: Was that something that he learned from his father?

Lee S: I think so. And then I think the navy experience had reinforced that, because he was newly out of the navy then, and he'd had such a terrible experience in the war. He had a wonderful attitude. He even verbalized it, that he was living on borrowed time for the rest of his life. He lived each day as a gift, and that was really true of his attitude. He felt that he was lucky. He always said anything after Anzio was just extra time. That makes a profound difference.

Chall: That didn't come through when he talked to me.

Lee S: He didn't fret about little things at all, because he had a much larger point of view. He was very close to his parents. It was interesting, because he'd gone away to school so young, and they treated each other--there was a very different relationship there from what I had with my parents. I think I was close to mine too, but they always treated me as a child. My mother--to the day of her death, I was her little girl, and it was kind of an adversary relationship. Which Lang didn't have. I think because of his having gone away so young, they treated each other very respectfully and very politely. It was close, but they were more like equals.

Chall: Very respectful.

Lee S: Very much. I admired this. And his father talked to me very seriously before we got married. Of course, they came to the wedding, and had not known me well. His mother, I think, never did quite get over wondering--. I think she was nervous about his having fallen for some girl off in a mining camp, thinking that maybe because there wasn't anybody else around, he had gotten carried away. [laughing] I think she was a little disappointed that he didn't marry a California girl. I think she always felt bad that I didn't belong to a sorority, because most of her friends cared a lot about sororities here at Cal. She had not gone to college, and I think she was overawed by some of the sororities. She would have been happier if she could have told her friends that I was a Pi Phi or a Kappa or something, and I wasn't.

But anyway, we got along. I was always very sorry she died so young, because I think we would have been very, very close had she lived longer. I think she would have liked me very much. [laughs] Lang's father and I became very fond of each other, as it became clear through the years that we had a really good marriage.

His father took me aside before we were married and talked about Tayoltita. Lang had purposely, I guess, not told me the good things about Tayoltita. He showed me pictures--

Chall: I was wondering what he told you.

Lee S: Oh, he showed me pictures of adobe shacks with outside cooking arrangements and no plumbing, the worst kind of thing. I thought I was going to live in a hut down there, and be terribly noble about being deprived. He didn't show me pictures of the really nice houses. Somehow, he gave me a very negative picture of it.

Chall: Why?

Lee S: Well, of course, when I got there, I was thrilled to death to find how gorgeous it was!

Chall: He did it on purpose?

Lee S: I think he did. He really didn't tell me the good things. I just heard the hard things, about riding a mule for five hours, and all that. But Lang's father took me aside and talked to me very seriously before we were married, and he said, "You know, it is a hard place to live for women, and you will have a lot of challenges. It will be very, very difficult. You might not make it. A lot of women don't." But I remember just what he said: "If you make it, you will have a marriage that nothing can ever shake." And that was true in his case, and certainly in ours too.

Chall: Yes. His mother certainly had an adventure going down there!

Lee S: That's right.

Chall: To be married there, and going up on muleback to the mine.

Lee S: It was true. You got terribly inter-dependent in this place. You're just totally dependent on each other, and if you make it, you've really got something.

Chall: That was interesting. And certainly his wife had no idea what she was getting into.

Lee S: No. [laughter] Her life was much harder than mine.

Chall: Well, that's wonderful.

Lee S: So I went down expecting to be much more--

Chall: Really a spirit of adventure.

Lee S: Right. I thought I was going to have to do my own cooking over a charcoal burner or something, and it turned out that it was not that bad.

XIII TAYOLTITA, MEXICO, 1947-1954

The Exciting Arrival and the Need to Learn Spanish

Chall: Did you fly in? I mean, by that time there was the airport?

Lee S: Yes. There were the airplanes.

Chall: So you didn't go up on muleback?

Lee S: No. We traveled by mule once we were there to get around to other places, but by the time I was there, there were planes three times a week if the wind didn't blow, and if the wind blew, the plane didn't come in. So for our first vacation, we had to wait five days to get out, because the plane couldn't come in. Every morning we got up and packed, and got out to the airfield at five o'clock, and the plane didn't take off. [laughs]

But it was nice. We had nice houses.

Chall: You did arrive on a plane, and your emotions on arrival were slightly different from what you had anticipated that they would be?

Lee S: Well, it was much more beautiful, of course, than I had expected. It was a very beautiful camp with bougainvillaeas and jacarandas and flame trees and lots of beautiful flowers. The houses were made of adobe blocks, I guess, but they were stuccoed and painted, with tile roofs and floors.

Chall: This was the compound?

Lee S: We called it the colony. It was called the American Colony, although it was not all American. There were Mexicans living in there also. But Tayoltita was special in that there were a lot of Mexican staff, and it was a very unified community.

The first night I got there, there was a party, and it was exhausting to me because I didn't speak Spanish, and everybody spoke Spanish. The people there at the party were Mexicans as well as Americans. I was so tired because I spoke no Spanish, and everybody was bombarding me with Spanish, and I couldn't understand a word, and everyone was smiling and happy to see me. It was very unsettling not to be able to speak.

Chall: How did you learn Spanish?

Lee S: Lang wanted very much for me to learn Spanish, and I wanted to also. So I got a college textbook and I studied every day for several hours, and he helped me in the evening, corrected my papers and corrected my pronunciation. I really worked at it; I didn't just pick it up. I worked very hard, and went through a couple of years of college Spanish, first year and second year. And of course, learning as I went along on the side.

But the very first day that we got into a house, the first thing we had to do was order firewood for the stove. The man came, old fellow wearing huaraches and a sombrero, and he had this burro-load of firewood. He came to the door and knocked on the door and I went to the door, and he said--and I knew no Spanish when I went there at all. I only know what he said now because he said, "Usted es la señora del Niño?" I understood señora, and I knew niño, which means baby. I'd learned that much by then; I'd been there two or three days. We stayed in a staff house a couple of days and then got into a house. I didn't know what he was talking about.

Anyway, I couldn't talk to him, so finally he just dumped his firewood and left. Then I asked Lang what this was about. Then it turned out that Lang was known to the people there as El Niño, because for so long he had been the only American youngster--and this old man whom Lang had contracted to bring the firewood had known him ever since he was little. I guess he called him El Niño Langi. My recollection is he just said Niño, but maybe he said Niño Langi, because that's what they called him.

Chall: He was the Baby Lang?

Lee S: The Baby Lang. So anyway, I was the wife of the Baby! [laughter] And of course, I didn't know that. But that's what they called me behind my back--the wife of the Baby. So that was one of the first funny things.

Then Lang hired, because I couldn't, he hired a little maid, and Lang still had not gotten used to having someone else around. When he took off his clothes, he just dropped them on the floor. I

broke him of that eventually, but he would just undress and drop his clothes on the floor.

Chall: Somebody would always pick them up, of course.

Lee S: Someone had always picked them up. And then this little maid came in, and she saw his underwear on the floor, and she got a bucket and was mopping the floor with his underwear! So one of the first phrases that I had to learn, and for years I had the piece of paper, and now I've lost it, but that night I had to ask Lang the sentence that I needed to say: "Do not mop the floor with that, it is my husband's underwear!" Which is not in the Berlitz phrase book. [laughter]

But the things that came up that I needed to say like that were just totally unanticipated.

Chall: It must have been quite a surprise to Lang, too.

Lee S: Yes. "Do not mop the floor with my husband's underwear!"

Chall: I'll bet that taught him to pick it up very quickly.

Lee S: It did, it did indeed. After that, he picked it up.

But the houses were very nice. We lived in a succession of three houses. They had concrete floors, marked into squares like tiles, and polished. We did have wood stoves, and 15-amp fuses; all we had was 15 amps of power. I learned to do an awful lot of things with 15 amps. It was years before I could bring myself to turn on two burners of the stove after I came back to the States. I had learned to do things by just moving things around on one burner, and of course the wood stove. We had a wood heater for our water, for our shower. The water tank for the shower had a little fireplace under it.

We always hired a little boy, and his job was to take the garbage out every day. We put the garbage in a bucket, and then every morning he would take this out to the river, just dump it over. There was a bank where everybody dumped the garbage. Of course, the pigs took care of most of it. The little boy's job was also to build the fire for your shower when you wanted, and to build a fire in the kitchen stove, and to polish our shoes.

[Interview 3: July 13, 1994] ##

Chall: I was wondering how the other wives of some of the Anglos, I guess you'd call them, as well as some of the Mexicans interacted with one another and with the extended community. You began to learn to speak Spanish at once. What about some of the other American wives? Did they learn to speak Spanish right away? Did they ever?

Lee S: Some of them became quite fluent in Spanish, and some of them never made much of an effort. I think I was the only one that studied hard. I sat down with my books, that being my bias, and Lang really encouraged me in that, so I did that. I got an old Fraser and Squaire college textbook and started doing my lessons every day, and Lang would help me with them. At night, he helped me with my pronunciation and speaking, and I would make a list of words I needed help with and so on. I think I'm the only one that did that, although some people may have studied Spanish before.

But Evie [Evelyn] Morel spoke quite fluent Spanish, and Jane Briggs did also. I think most of the women--they all learned some Spanish, and some became rather fluent.

Chall: Did they become well acquainted in the general Mexican community as you did?

Lee S: Oh, yes, I think so. One of the nice things about Tayoltita was that the Mexicans and the Americans got along so well, especially the ones like Evie and Jane who had been there for many years; the continuity was really with the Hispanic, Mexican friends. The Perez family and the Cordova family were friends of all of us, and of course, in my case, that was a second generation friendship, because they'd been friends with my mother-in-law as well, and Lang had known them as a boy. And the wife of Tomás Ortega, the doctor, was a longtime friend of Lang's--her father had been the company pilot, and she had gone to school in the States and spoke very good English. Our social life was--we grasped at any opportunity for a party. We had farewells and welcomings and birthdays and anniversaries, and celebrated visitors particularly.

We had a weekly canasta group, Canasta Uruguaya it was called. It was the big novelty that had come in from Uruguay, this card game. Thursday was canasta. We rotated from house to house, the Mexican and American women, and we played--and this was a wonderful way to learn Spanish, because they would gossip and joke, a lot of joking, and slang, and a good way to learn to count. So I did really learn more Spanish at the canasta games than--yes, that's where I learned my social Spanish, I guess.

Chall: Were these Mexican women the wives of some of the head staff people?

Lee S: Right, the pilot's wife, the assayer's wife, the doctor's wife, the head electrician. Let's see, Pepe Perez was the office manager, and Oscar Perez was the chief electrician. The accountant, geologists, engineers--they were all staff people. Their wives had the equivalent of a high school education. I don't think any of them had anything beyond that, but they'd all had--most of them, I think, a convent kind of education. Although there weren't really convents in Mexico (anticlerical laws were still in effect), but they had probably all gone to private schools in some sense controlled by the church. They'd had no biology.

Chall: Did they all have children?

Lee S: Oh, yes.

Educating the Children

Chall: You didn't have children at that point, but did the other Americans have children there?

Lee S: Yes.

Chall: And how were they being taught?

Lee S: There was a school in the town--there were two schools. There was a public school, and then for these people who could afford it, there was a private school down on the plaza run by somebody known as El Profesor. I never did find out what his name was, but there was a little private school there. And I know that Sydney Henshaw went briefly to that school, but they were pretty hard on her, and she didn't go long.

The Americans all taught their children at home with the Calvert system. I always thought it was strange, there was never any thought of cooperation. Each American taught her own children, and they never cooperated on it at all, which would have seemed logical, for them to share their talents and get together. But they never did; each one did her own Calvert school every morning.

Chall: Did you use Calvert with your children?

Lee S: When the time came, I did. Just kindergarten was all. When Kim was ready for school, we came back to the States. But it's a wonderful school.

Chall: Yes. Calvert is exactly what?

Lee S: Well, it's the Calvert school--I think it was called at that time "Calvert School at Home." It's from Baltimore, Maryland, and it was started ages ago for diplomats abroad. It's geared for Americans abroad so that they will be Americanized and can fit right into the culture at home. At least at that time; it may have changed now. But there was nothing in it about a world view or multiculturalism or anything; it was strictly indoctrinating the child into the American way of life, American holidays and American customs. They sent you huge boxes with absolutely everything. They assumed you were someplace where you couldn't get anything, so every paper, every rubber band, every paper clip, scissors, crayons, colored paper, paste--everything came, which was marvelous.

In October, even with the bougainvillaea and the bananas and everything around you, you were cutting orange maple leaves out of construction paper that was the proper color for a maple leaf. [laughter] At Christmas you had snow and Santa Claus in your lessons, even though you were in the tropics. And it was very traditional, which I think was fine for kids growing up overseas. They needed this.

Chall: Did seem a little odd, I expect.

Lee S: Well, they got plenty of multicultural education on the side.

Chall: Yes, that's right.

Lee S: But it was funny. I remember when I opened my November box or October box or whatever, and here were all these orange and brown leaf patterns. [laughing]

Chall: Was there some kind of testing, or was it just assumed that--

Lee S: Yes, in the higher grades, you would send things in to be graded at Calvert. But for kindergarten, there was nothing like that. You were on your own, but wonderful manuals told you absolutely everything to do. And daily plans. It was laid out so that if you were an idiot, you could teach it well. It was just very, very well planned. Told you everything to anticipate.

Chall: That's very good.

Lee S: I thought it was wonderful.

Chall: I do know somebody who I think went through many years of Calvert.

Lee S: Well, everyone I've known who's done it I thought was really well educated.

Chall: Very well educated.

Lee S: Yes, that's right.

Housekeeping, Meals, Cooking, and Other Tasks

Lee S: There were some other things that I thought I should mention. Mexico had established an embargo just about the time that I went there on American imports, so that virtually nothing could be imported except books and records. No clothes, no foodstuffs. Just shortly before I was there, there were still a few such goods left in the stores. They had lived quite well. They had Danish butter, for instance, cans of Danish butter, and things from Holland, and European things. A lot of imports. And then this embargo was put on, and I had arrived at the worst possible time. I remember, I think there was one can of Danish butter that we got before it ran out.

So then for a while, we were really living on Mexican things, and Mexico had very poor canned goods. There was no soap to speak of. We got something called Jabón Olga, which was the crudest, awfulest kind of soap. Lard was our only source of oil. And they didn't have electrical appliances. It was really bad for a few years. But then eventually, Anderson-Clayton came in with cooking oil and margarine, and Jabón Fab. When Fab came, remember Fab?

Chall: Yes.

Lee S: It was a detergent. That was the first detergent that had ever been in Mexico. That revolutionized everything. That made washing easy, everybody was so thrilled.

Chall: How did you wash? You didn't have electric washing machines, of course.

Lee S: No, no. We had a laundry tub, and running cold water. The girls would scrub and scrub and scrub, and the people in the town often did a lot of washing in the river. And Fab was a Godsend to everybody, it made it so much easier. And the cooking oil, particularly getting cooking oil and Fab were two wonderful things.

Chall: When you say that Anderson-Clayton came in, that was the--

Lee S: Clinton Anderson, the American senator from New Mexico, was a partner in this company, Anderson-Clayton. And the brand, the

things were called Acco, Acco margarine, and Acco oil. Later, when we moved to New Mexico, I always had a soft spot in my heart for him because of that enterprise.

Chall: But how come they were able to get in?

Lee S: Well, they established a Mexican company. They built a Mexican company.

Chall: I see. That was permitted?

Lee S: And that's what happened, it stimulated Mexican industry. It turned out to be a very good thing, but there was a period in there, the lag time was kind of bad. When I came out to the States, I bought an electric hot plate and took it back. They let us take it across the border--it was when Kim was born--because I said I had to have this to heat milk for the baby. And of course, Mexicans will do anything for a baby. [laughter] So I wept on the man's shoulder at the border and said, "Oh, I have to have this for my baby!" So they let me bring a hot plate in.

Chall: So otherwise, it was several years then before--

Lee S: It was a while, yes. Well, this hot plate that I brought in was a special, heavy-duty one. You could get little flimsy hot plates in Mexico, but not very good ones.

Chall: And it would work on the 15-amp, if nothing else was connected?

Lee S: That's right, nothing else. Lots of times, if you had somebody for dinner and you had the record player going and the hot plate going and the lights turned on, and somebody went into the bathroom and turned on the light, then the fuse blew.

Chall: You had to learn how to juggle--

Lee S: Or else if the refrigerator suddenly kicked in it would blow the fuse sometimes. Yes, we learned how to juggle the power.

##

Chall: What did you eat?

Lee S: Our food was wonderful, but seasonal. We didn't get anything exotic. We did not have freezers, and the local stores didn't carry much except canned goods. And there was the embargo, so we couldn't get foreign things. Local produce, of course, was strictly seasonal. We had this wonderful vegetable garden that the company ran which Lang probably mentioned, that the Ley family ran,

and so we had marvelous vegetables. At eleven-thirty, we went out and yelled to Pancho that we wanted one cabbage or one carrot or one beet or one onion, and he would pull them right out of the ground for us. And then again at five o'clock, we went out for our dinner vegetables. So they were never more than a couple of hours from the ground. And we had wonderful fruits, papayas and bananas and limes and lemons, and a cactus fruit called pitahaya, that grows on the big organ cactus that were just delicious in season.

Chall: How did you eat those?

Lee S: Just ate them. Just peeled them and sliced them and oh, they were so good. Eggs were a problem. We got no fresh milk ever. We used canned, powdered milk. Cheese would come from the Sierra, and eggs from local people who had chickens. There was a season when hens didn't lay, and then there would be no eggs. This was during the rainy season in the summer as I recall. So that's when your relationships with these vendors came in handy. There was an old man that we called Apenitas, I don't know what his name really was. That means "just barely." [laughter] He would come to the door with a wooden tray hanging on his shoulder, and he would come with vegetables and fruits, just little things.

Chall: From his garden, or from somewhere--?

Lee S: I guess so, or maybe he got them from somebody else, I don't know. Occasionally he would have a chicken. Often he sold things that you didn't really much want, but you bought them through the year so that when the scarcity time came, if you had a baby, and if Apenitas liked you, he would come up now and then with an egg. Apenitas and I got to be quite good friends, and I was always able to provide my children with one or two eggs a week, thanks to him. And sometimes your maids would scrounge an egg or two for you also. In those days, we thought you had to have--

Chall: An egg a day.

Lee S: --lots of eggs. We worried to keep our children in eggs, this kind of thing. We had, I think, wonderful food, and clean air and clean water, and those things that we appreciate more now maybe in retrospect.

Chall: You had a housekeeper that did some of the cooking and--?

Lee S: We had to have more of a staff than you might think. We had to bake all our own bread, and had to roast and grind all our own coffee. We bought green beans at the store, and they had to be roasted, either in the wood stove or in a little electric oven. And then had to be ground, so it all took hours. The bread, that

was almost a full job for somebody to do; and soaking and grinding the corn for the tortillas, and soaking and cooking the beans, because you also fed all of your employees, and they wanted corn and beans and tortillas. They're labor-intensive foods.

If you had hamburger, you got a hunk of meat and ground it with a hand meat grinder. So a cook was not really a luxury, a cook was busy all day long boiling the water--because we did boil our water as a precaution. A lot of things--a cook simply brought you up to where you would start here with no help.

And then a laundress, because we didn't have hot water, and we didn't have washing machines. Everything was washed by hand. And we had, of course, cloth diapers. So your basic help: You had a cook and a laundress, and a little boy, a mozo, who did errands. Our garbage had to be taken out each day, and the soaked corn, called nixtamal, had to be taken downtown to the corn mill to be ground for the tortillas. If the butcher had butchered, you'd send your mozo for the meat. He did errands, in other words, and because we had no telephones, he also delivered messages.

Chall: How old were they?

Lee S: Oh, these were little fellows, ten, eleven, twelve. And sometimes they went to school; sometimes they were kids who didn't go to school. You hired them for not very much money, and that way you gave them clothes and food, and they were happy. So most of us had as a basic at least a cook and a laundress and a mozo.

Chall: Daily?

Lee S: Yes. Sometimes they didn't come on Sunday; that was up to you.

Chall: Oh, yes.

Lee S: And then beyond that, if you had a nursemaid or another maid to clean your house or something. But I always managed to get along with just a couple of women and the boy. Sometimes three women, when there were lots of children.

Chall: Where did you get flour--what kind of flour?

Lee S: At the store downtown; it was very unrefined flour. It was very good, it made wonderful bread, because it wasn't refined. You had to doctor it up with corn starch to make a cake, but it made good bread.

Chall: And yeast?

Lee S: We could buy bulk yeast at the store, or keep a sourdough starter going yourself.

Chall: And it was baked every day, a loaf of bread?

Lee S: No, a couple of times a week for us. That's one reason we ate more tortillas, because the girls were more comfortable making tortillas, and we liked them. So we ate a lot of tortillas rather than bread.

Chall: How about roasting coffee?

Lee S: I did have a small electric roaster oven that I used for that most of the time when it was working. We ground it by hand, until later we could get Waring blenders that were strong enough to grind coffee, but it was kind of hard on the blender.

Chall: So you really probably made very good coffee.

Lee S: Oh, we ate pretty well.

We had tile floors--that is, concrete tile, not gorgeous Spanish tile, but concrete painted--

Chall: Right, I know the kind.

Lee S: It was smooth and attractive, and the traditional way to clean it was to wet-mop it every day with something called criolina in the water. I guess it was creosote. It smelled good; it was a clean smell. This was to keep the cockroaches down. And we had no vacuum cleaner, so here again, a maid was not really too much of a luxury, because you had to sweep and mop the floors every day. A good housekeeper did this every day. All the Mexican homes and ours were wet-mopped every single day. It smelled good.

The other thing that we did in those days, once a week we shot DDT all over the place. I shudder now to think of it, but we were so thrilled with DDT, because we did have cockroaches. So every day, a room would be closed up and you'd go in with your Flit gun and spray DDT around and leave it closed for an hour, and then open it up to air it out. I don't know what damage it did to us, but for a time, it killed the cockroaches. But then later the cockroaches mutated and didn't mind the DDT. But at first, we were very clean.

I had one maid that worked for me for all the time we were there. We got her soon after we moved there, and her name was Heladia. She had come down from the mountains, as most of the girls did. When she first came, she had never seen a door. She

didn't know how to use the doorknob. I was standing inside and she was outside, and she didn't know how to open the door. She had never seen a refrigerator; she was scared of it at first, that it was so cold. But she was very bright. She was illiterate, but bright, and a wonderful, wonderful girl. Her illiteracy was actually a help because she remembered recipes, she didn't rely on pencil and paper. She was the one who brought it to my attention that muffins and waffles use the same recipe! [laughs] Virtually the same; I think waffle has a little bit more liquid or something. I had never realized this because I was so wedded to paper.

She never could remember which was which, so she called--either one of them was called "mufles." She distinguished them by shape; one was flat and one was round. [laughter]

Chall: They cook in different kinds of pans, too.

Lee S: Right. That was the difference to her, but the recipes were similar, and being illiterate she remembered recipes wonderfully. She was very, very clean and very honest, and just a wonderful girl. She crocheted beautifully; she made lots and lots of doilies for me. She was always busy. When the babies were asleep, she would crochet. She sewed very well, too, made all of her own clothes.

She later married the mayor. She married a fellow who was working as a carpenter for the company, and later when we went down to visit several years later, he had become the mayor and she was the mayor's wife. She was just a lovely person. Died very young of cancer, and I felt so bad about that.

One interesting thing about her. She'd been brought up way up in the mountains on a ranch. Girls in that environment, for reasons of modesty, since they had no toilet, they just went out on what they called the monte, the mountainside, and little girls were trained from the time they were tiny not to urinate all through the day, because somebody might see them. It just really upset me sometimes when we would be with her for a day and she never, ever, ever went to the toilet. Finally we talked about this, and she said, "Well, the girls from the mountains never did. They would only go in the dark." They were trained practically from infancy that they went and did all their toilet functions either after dark or before sunup. She could go all day.

We brought her to the States later for a long visit, and of course, this was when it became very obvious to me that she never went to the bathroom.

Chall: Even in your house, when you did have indoor plumbing?

Lee S: No, she just was trained so she didn't.

Chall: Did she drink water?

Lee S: Yes. They just had this incredible training--and it was because of modesty. Girls. The boys went all over the place, but girls did not, and I always thought this was remarkable. But she was a wonderful person, and a great help to us.

Chall: Did she come before Kim was born, or almost as soon as you came down?

Lee S: Yes, she was working for us before he was born. She would come early in the morning, at practically sunup. At about sunup, the girls would come.

Chall: From how far?

Lee S: Well, her family had moved down to town, and they lived across the river in a little house, not too far, half a mile. They would come for breakfast, and then leave after supper in the evening. Then during the afternoon, all the girls went down to the--there was a maid's wash house, a place where they could rest and bathe and visit while the children had naps. They would be down there singing. The girls all sang all day long while they worked; all Mexicans at least at that time sang all the time. That was something I missed when I came back here. You could hear them singing and laughing, and they had a wonderful time.

Community Work: Charity for the Poor

Lee S: I don't believe I had said anything about the Pobres, our charity. We had a women's sewing circle, what we called a costura, every Tuesday afternoon. It was a group of maybe thirty women all told, mostly Mexicans, and a handful of Anglos. We didn't use the word Anglo. It was either Americanos--which included Canadians, all English speakers--or Gringos. Gringo was not a pejorative term; at least we didn't think it was, and everybody used the term Gringo. There was some sensitivity to the fact that Mexicans were also Americans, so some people used the term Norteamericanos, but seldom.

Our Tuesday afternoon costura was also sometimes called the Red Cross, because I think it had started during the war as a Red Cross effort. Anyway, we got together and embroidered doo-dads,

bibs and dish towels and pot holders and things which we then sold to each other. [laughs]

Chall: And then the money was for--?

Lee S: And then we used the money to feed poor people who were really totally, totally, totally without resources. Maria del Carmen Perez was the one who was the organizer of all of this. She bought the fabric wholesale at the store that we made the dish towels out of. She maintained the books and chose the people, and there were again usually twenty to thirty people who had absolutely no means of support. Most of them were old people who for one reason or another had no family who could feed them. They would come every Saturday morning to a room that we rented downtown, and they would bring their big bag to carry stuff in. We weighed out portions of coffee and salt and sugar and corn and beans and pasta, and wrapped them in our old newspapers, made little packages of them, and gave them all this food so that they could survive.

Chall: Just about a week's supply?

Lee S: Yes. We weighed it out very carefully, 250 grams of this and a kilo of that. Some got more. There was a record book, because some had dependents, somebody else that they had to share it with, and they got a double ration. And there was one girl I remember, we called her the slider, La Rastradora, who had no use of her legs. She pulled herself on a mountain trail in from a place called Guarisame, which was up the river about two hours. She had a beautiful face and was a lovely child, a young woman, who had been abandoned as a baby and was crippled, and came into town and picked up her food. Oh, she was just so heartbreaking.

One of the most shocking things I ever had happen was one Saturday when she was there, and I looked at her, and she was wearing one of my old dresses. I had not given it to her, and I was so startled. It was a dress that I had given to Heladia, and it turned out that Heladia was passing things on to this poor girl because she felt so well-to-do that she was helping this girl. I was quite touched by that.

But that was the one thing that we did that was a major kind of charity. We also took turns going around once every two or four weeks to all of the local merchants and houses. People pledged to this, contributed ten pesos a week or whatever, to help us buy the food. So the source of the money was these donations and also our embroidering. We were able to support a lot of people with this. And it was good for us to do something useful.

One of the problems in this whole life was that we were pretty sybaritic, and also we got no exercise. I look back now and think of all these young women now that are at their gyms working out, and in those years I was getting virtually no exercise, because we couldn't. There was no place to walk, and we had a tiny little swimming pool which I don't think I ever really swam in. I stood in the water occasionally with my children. There was a tennis court, but I wasn't a good tennis player. We really didn't get any exercise, and we didn't get much chance to do community or civic work except this. That was all.

Chall: You were really quite busy just keeping house.

Lee S: Well, yes. It was much more complicated than it sounds to keep a house going. All this help, they were untrained kids from the mountains that were more like having extra children than anything. They did the chores, but you certainly had to teach them. They didn't know how to do anything without a lot of supervision.

Chall: You came down there in 1947 as a bride.

Lee S: I was just barely twenty-three, and I thought I was pretty grown-up. [laughing]

Chall: And all the other women were much older, I presume?

Lee S: Well, yes, most of them were. I think Betty and Jane were both thirty at that time. Then other people came. Hazel Colen and Lila DeLeen, who were about my age. They came. Hazel and I were having babies at the same time. But they lived up at the mine, so we didn't see as much of them. Lila DeLeen was about my age.

The Doctor, the Hospital, and the Necessary Support of Friends

Lee S: Our doctor, Tomás Ortega, was a very good doctor. I really thought a lot of him. I should mention, Lang had a terrible accident. I don't know whether he discussed it; he probably didn't. This was a horse that went loco. Lang was working at the Santa Rita mine up river from Tayoltita, and he had been concerned, he later said, about this horse. He thought it wasn't a reliable horse, and that particular morning when he rode up to the mine, he said to himself at that point that he was not going to take that horse again, because he didn't feel good about it. It was a big white horse. Mostly he rode mules, but there was this one horse.

He was leaving at five-thirty in the morning to get up to Santa Rita. It was quite a ways. He'd gone up to the mine, and at about three-thirty or four, I guess, I got a phone call from him. He called and sounded just fine. He said, "This is Lang, and I just wanted to tell you I may be a little late because I've had a little fall here, but I'm okay and don't worry, but I may be late." But he sounded fine.

Well, as it turned out, he was still under shock, and called me and sounded fine. But when the time came that I thought he should be in and he still hadn't come, I went out to the gate, and found that there were a lot of people gathered there, Larry Morel, the manager, and various other people all standing in a worried-looking group waiting. I remember Larry put his arm around me, and that scared me more than anything. I knew something was up, and we watched down the trail.

Here finally they came up the trail, several men carrying a stretcher--

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Lee S: He was just a bloody mess, just a mass of blood, and it was pretty scary. I almost fainted at that point.

But anyway, they took him down to the so-called hospital and cleaned him up and worked on him. He survived obviously in good shape. What had happened was that when he was getting on this horse, somebody was standing there who I guess made a motion that scared the horse, and the horse backed off this trail, which was hundreds of feet up above the river. The horse just backed off this trail and fell, and was killed.

Lang was quick-witted. The thing that saved him was that he wasn't completely mounted on the horse. He was able to get his feet free of the stirrups, and he fell free of the horse. He was wearing a hardhat, his miner's hat. That stayed on long enough to protect him, but then it did come off at the end, and his head was just really totally abraded, and his back was--oh. The only part of him that was really not completely skinned up were where his boots were and just around his hip area, his pants held. But his shirt, the back of his shirt and everything was just in shreds, and his back, the skin was just off his back, his arms. He was just a mess.

Chall: Terrible.

Lee S: Abrasions, and scalp wounds. The doctor took some x-rays, and he sent them to the States, and no real damage at all. It was a

dreadful near-miss. At that time I was about six weeks pregnant with our first child, and of course hadn't told anybody. But we were pretty sure. And I remember sitting down there at the hospital waiting while they cleaned him up and then the doctor came out and said that Lang was okay, and then we took him home and put him to bed. The doctor was coming every three hours to give him a penicillin shot.

Everything was just going fine, and then I tried to go to bed. When I got into bed, I went into shock. I didn't realize what was happening to me, because I had never had this happen before, but it suddenly hit me what happened. I couldn't sleep, of course, and then I began shivering and shaking, and just really went into shock, and didn't know what it was. I got up and was sitting in the living room with the lights on, just sitting there shivering, and Jane Briggs came to the door. She was down from the mine for some reason at that point, and she came to the door and she immediately saw what was the matter. She went out to the kitchen and rummaged around and found cocoa, and made me a big cup of hot cocoa. She said, "You're just having shock."

She sat and gave me hot cocoa and crackers or cookies or something, calmed me down, and told me not to worry, that he was going to be all right, and that I was okay. It was so wonderful. The thing that was kind of remarkable about it was that I really had not liked Jane very much. She'd been very hard on me in lots of ways. She was a rough-tough kind of person, but as good-hearted as can be. It was a very good lesson for me, the whole situation. We were so dependent on each other, and it taught me a lesson in being dependent and having to receive help from somebody, and take help even from somebody that I really was not terribly fond of. It was a wonderful thing that she did, and I never have forgotten it.

Our doctor, Tomás Ortega, was very religious, a devout Catholic, and he was very concerned about what he did. He would never go beyond his abilities. He was not reluctant to send people out to a specialist. He never tried to do anything that he wasn't pretty sure of, if he didn't have to. I had a lot of confidence in him, more so than I've had in some American doctors that I thought would try things they were not very good at. But he was really worried about this accident.

And then when I knew I was pregnant and went to him, he was very upset because he had never--I was twenty-five at that point, and expecting my first baby, and he had never taken care of anybody that old having a first baby. He really was wringing his hands because I was so <u>old</u> to be having my first child. He was very worried, and did lots of blood tests and urine tests and fussed

over me, and was so anxious to get me out and up to the States. He did not want to deliver a baby to such an old woman. [laughter]

Planned Parenthood in Spanish

Lee S: He of course, being a doctor, knew about biology, and he was willing to try the rhythm system, which was sanctioned by the Catholic church. But Gloria, his wife, had ten children before she ever menstruated. And this was kind of typical of a lot of these women. They just were constantly pregnant, whether or not they wanted to be, because there was no--they didn't know about any cycle of ovulation or anything, and there were absolutely no supplies that you could buy, no contraceptives available anyplace in Mexico. Even with well-meaning, well-intentioned husbands, they just were subjected to this cycle of pregnancy.

I became pregnant after being married for so long, a year and a half with no baby--[laughs]. We'd been married over two years when Kim was born. The women were very startled. They came around to me one by one and said, "We thought you couldn't have children. How come?" They were just amazed. They knew I knew something they didn't know.

Then, when we were married another year and a half before we had the other child, that proved it. By then, the women had enough confidence in me, some of them talked to me, and then later more of them did. So I got in touch with Planned Parenthood in New York. It took me a while to track them down and so on, and I found that at that time, Planned Parenthood had no literature in Spanish. Not a thing in Spanish.

They wrote to me--I wish I'd kept the letter, I should have--they warned me that I could lose my residence permit in Mexico if I were ever caught doing this, that I would be expelled from the country. But they did send me their material, and said that I was welcome to translate it into Spanish, that they'd be happy to have it used, but that I had to be very careful. Lang and I talked it over, and he was thoroughly behind my doing it. If I'd been thrown out, I guess he would have gone with me.

So I did start telling the women when they would drop by for coffee, and the conversation would get around to this topic, I would pull this stuff out and show them the diagrams, and explain that there was a cycle, and that if they could time it right, then they could avoid having so many babies. I remember that one woman who had had eight children in eight years, she just burst into

tears. And she said, "Oh, I wish I had known this." She loved her children, but she was just so thrilled to know this. So I felt very, very good about that.

Then, in time, the Perez family started a drug store there, and I think they were selling contraceptives under the counter. I believe that they did somehow get some in from the States. And it seemed that there was a place in Mazatlán where you could get contraband contraceptives. I never of course was trusted enough to know this. We had to bring ours all in from the States, a year's supply, when you went out for vacation. But I think that they found out--when they knew there was such a thing--I think they found out they could get them occasionally in Mazatlán or in Guadalajara or someplace. But they hadn't even known, I guess. Poor things, they really hadn't known. So I felt very good about this.

Chall: Did you see the birth rate dropping off among the people whom you counseled?

Lee S: I thought so, yes. I think that they had fewer children after that. I'm sure their daughters probably did. But I did feel awfully good about that.

Chall: Did the other American women know what you were doing?

Lee S: I don't know. Maybe--probably they did. But they hadn't--for some reason, this hadn't come up, I guess.

Chall: There must be something about your personality.

Lee S: Well, I think I was maybe the first one that sent to Planned Parenthood for the material. They may have talked about it. But the diagrams and the literature were a little different approach.

The Premature Twins

Lee S: Speaking of the doctor, I don't know whether you knew about the premature twins that were born.

Chall: No.

Lee S: There was a family that came down from Canada named Taylor, and they had a fifteen-year-old daughter. They had had I think four or five other children who had died in a fire up in, I think Noranda. One of those terrible things that happens in the winter, a boiler

had exploded or something, and the younger children had all been killed. The family then fled really, came down to Tayoltita with the fifteen-year-old, Sandra. Beautiful girl. And they were all pretty shattered, obviously, by that experience.

Marge Taylor drank a great deal, and she became pregnant, and was drunk a lot of the time. Tomás Ortega was very angry with her for drinking so much, and she just wouldn't stop. Her blood pressure was going up, and he was worried about her, and she wanted to stay there and have the baby. He was quite annoyed about the whole thing.

Anyway, this was when Richard was a baby. She was going into eclampsia, her blood pressure was so high, and she was losing her vision. Tomás performed a Caesarean. It turned out that she had twins. These twins were each about a kilo. There were no incubators or anything to take care of them. Lang was beside himself. I remember he took our copy of Dr. Spock down there, and there was an appendix in that edition of Dr. Spock that had emergency instructions for rigging up a light bulb in a box, and they rigged up this incubator for the babies.

I didn't see them. It must have been Richard that was just a tiny baby. Anyway, I didn't get in on it, but I understand it was really wild, because he did this Caesarean with only a local anesthetic, and she just--oh, it was just horrible. But anyway, the babies survived--

Chall: They did?

Lee S: It was the wrong season for mares--Tomás said that mare's milk would be the best thing, or donkey milk or goat's milk, but there wasn't any. So they came around to all the nursing mothers, and I was one. Magdalena, the hospital nurse, would come around and knock on the door, and she had one of those little granite--blue enamel saucepan with a cover, and in it was a little glass breast pump and a sterilized bottle. She would come to the door every few hours and say, "Señora, the babies are crying." [laughter] I would go into the bedroom with this pump--it was a very primitive pump and very difficult, and I would manage to come up with a couple of ounces of milk. She went from door to door to all the nursing mothers in town, and they accumulated enough milk to keep those babies alive until they could get some special formula from Mexico City. It was about four days before they could get the special formula.

Chall: Quite an incredible story.

Lee S: Yes. We kept them alive. It was pretty exciting. We could get Mead-Johnson products from Mexico, but they were very expensive.

She had another baby ten months later. Tomás was scared to death about that, and I think he refused to deliver. She went to Mexico for that one.

Chall: But she still continued to drink?

Lee S: I think so.

Chall: Well, I guess she had help in the house to raise the children.

Lee S: No, she settled down a little bit after that, she really did. I think it was just the trauma of everything. But these twins were so cute, and then she had another baby less than a year after that. So they were a cute family. But that was kind of an exciting episode.

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I did want to talk a little more about our doctor, Tomás Ortega. He was a wonderful doctor, a Mexican, educated in Mexico. A lot of the Mexican doctors went to France to study. He was a very devout man, a very good doctor. I felt very comfortable about him, because he was not touchy about his own expertise. If something was beyond him, he was the first one to say, "Go out." For instance, he would never do a tonsillectomy. He said tonsillectomies were too dangerous, and he didn't have assistants. He had nurses that he had trained there, and we called it the hospital, but he really had very little hospital equipment; it was just a clinic, really. He would do surgery that he had to do. He did Caesareans, he did all kinds of emergency care, but he knew his limitations.

I remember one day I went down to the hospital, the clinic, to see him. I was in a room waiting for him to come in, and this hospital room overlooked a poor housing area. There were two little children outside this house. A baby was crawling around, as I recall. I think the baby was on a blanket, and then there was a little toddler there. There was a bottle which was supposed to be for the baby, but the toddler was stealing the bottle from the baby and drinking the milk. They were poor; I knew the family, and they were very, very poor. Then, when whoever was supposed to be in charge would catch the toddler with the bottle, she'd take it from his mouth and pop it back into the baby's mouth. But it was clear that both children were hungry.

As I was watching this, Tomás came in, and was standing by me, also watching. I turned and looked, and there were tears running down his cheeks. He was so touched at these children fighting over a bottle. He appeared to be quite callous, but I know that he was very tender-hearted about the things that he had to see all the time. There was great poverty there, and it was pretty sad. I was very touched by that.

Chall: Yes. Was he the one who stitched up Lang after his accident?

Lee S: Yes, he was the one. He was a good doctor.

An Active Social Life

Chall: Did you have to entertain much?

Lee S: Oh, yes. There were parties for everything.

Chall: That was a compound or a colony party? But I'm thinking of you as a couple, did you entertain guests in your home?

Lee S: Yes, at our house. Right, we did this. It was a very busy social life. We celebrated everybody's birthday, and guests coming, guests leaving, guests--lots and lots and lots of parties. If your cat had kittens, you celebrated.

Chall: Well, I guess this is the life of the so-called expatriates. You hear about that in the oil fields and the American colonies wherever.

Lee S: And big parties. Well, you could have a couple of people for dinner, but if you went beyond just a couple, then it was twenty-eight or thirty.

Chall: And where would those parties be held?

Lee S: Out in your garden, usually. Because the weather was nice.

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Lee S: We did a big extravaganza production for New Year's, and Betty Henshaw was kind of the director of it. We painted a lot of sets. A bunch of the fellows, the bigger ones--Lang was one, and Dr. Ortega was another, and Skinny Briggs, who was over six feet tall--these fellows would put on their mine boots, and then we made costumes for them, tutus. They called themselves "Las Ninfas de

Piaxtla," the nymphs of the Piaxtla River. They would do a ballet dance. Maria del Carmen and her brother Carlos usually did a comedy act of some sort that was hysterically funny, and people would sing. Rene Wilson was a diamond driller who had a beautiful singing voice, and we'd have a girls' chorus. Some of us sometimes were chorus girls, and it was just a good New Year's Eve party.

But I had trouble my first New Year's Eve, because I didn't drink, and I went home at about two o'clock in the morning. I got tired. Somebody came and knocked on the door and said, "You're not supposed--you cannot leave yet. You are considered the hosts, and you have to stay until sunup." It was an all-night party and ended with a breakfast or something, and you were supposed to stay up all night and have fun, fun, fun. And of course, you were excused if you got so drunk you passed out, but if you were still on your feet, you had to stay up all night. I resented that, I really did resent that horribly. I didn't mind staying up until one or two, and it was always great fun in the first hours, but from two o'clock on, it was not fun if you were sober. I never did enjoy that. Those last few hours were always hard.

Chall: But you had to do that every year?

Lee S: I think maybe I was excused when I was pregnant. But it was the way things were.

Chall: And Lang, of course, did it.

Lee S: Yes.

Wives and Social Subtleties

Lee S: He knew that that was part of it. But one of the things that I think I realize looking back now on not only the Tayoltita episode but any mining camp, I think that the wives were really in effect employees, and we were under a lot of restriction, very much like army post life. There were things that you were expected to do, and yet they were never verbalized. Nobody ever really came out--there was no job description, you weren't hired for this, no interview or anything. But if you didn't do it right, it was held against you, and you were never really clear whether you were performing right or not. It was an awkward situation.

Chall: Would it be held against the husband too?

Lee S: Yes, probably. Sure.

Chall: And might affect his promotion?

Lee S: Oh, I'm sure it was taken into--I'm sure it would be, if you were an absolutely terrible hostess, I'm sure that it might affect him. But it was never really spelled out what you were to do in the way of community responsibility or--. I think in Tayoltita I felt it in things like this, that I hadn't been told I was a hostess and expected to stay up all night until I goofed, and then it became clear that I was doing the wrong thing. But nobody told me ahead of time what the right thing was. [laughter]

Chall: Supposed to learn it on the job.

Lee S: Yes, and that's a little hard. And then in Grants, I felt the same thing there. We were never given an entertainment allowance, and yet I knew I was expected to entertain. But it was never mentioned--never made clear, and yet obviously you did need to do a lot of entertaining, but there was never any mention of an allowance. So we just paid it all. I thought it would have been a better way to handle it if it had been done a little more as a straightforward thing with an allowance and something to account for. And all the community work that I did, I would have liked to have had it acknowledged at some point or other. Because I felt that it was good P.R. for the company--I wasn't doing it for that reason, but it would have been nice if it had ever been acknowledged.

Chall: But it never was?

Lee S: No, no mention was ever made of any of the things.

Chall: Accepted and expected.

Lee S: Or maybe not even known. Maybe nobody even knew of it. But I think it probably did affect--

Chall: How people looked at the company.

Lee S: The company's image, I think. I thought it would have been nice if they'd been aware in the head office of what the wives were doing.

Chall: And aside from entertaining, which I'm sure they all did, how many other wives were as active in the community as you?

Lee S: In Tayoltita?

Chall: Well, in Tayoltita, or even Grants.

Lee S: In Tayoltita there were a couple of women who didn't go to the sewing circle. They just flat-out didn't. I'm sure it wasn't held against them at all. But they missed out on a lot of fun.

Chall: Yes.

Lee S: In Grants, which I'll go into later, other wives were as active in the community as I was; most of us really enjoyed working to improve our situation there.

The Many Sounds in Tayoltita: Raining, Braying, Singing

Lee S: One of the things I wanted to mention was the weather, the torrential rain. I had not ever known tropical rains before, and the noise was just unbelievable. There was an arroyo there, the Socavon Arroyo, and when it rained hard, huge boulders would come tumbling down this arroyo. The rain on the roof, and the boulders tumbling down--it was just a deafening noise when it rained.

Chall: And frightening?

Lee S: No, not frightening, but just deafening. And it rained so hard, for hours. It was just a torrential tropical rain that I had never experienced before. It was quite exciting. And the river would come way up high. We could only get across the river at that time on a suspension bridge that swayed when you walked. Carrying your suitcases to the air field across this high swinging bridge was quite an adevnture. That was sort of exciting, and something to get used to.

The sounds of Tayoltita were something I missed terribly when I came back here, the little burros that brayed. The American colony was on a high up above the river, and there was a trail that went down to the lower part of the town and across the river. There were cantinas--bars--downtown. And of course, sound rises, and drunks would sing and play their guitars. On this trail, there was a place where they liked to sit and play their guitars, and the cantinas had music--radios, I guess, they didn't have juke boxes. And people playing guitars and singing. There was always music. Not always fine music [laughing], but there was always music.

Chall: It was the culture--

Lee S: Happy--yes. And our maids sang all the time, as they worked. The laundress as she was washing would be singing, and the girl who was taking care of the baby would be singing, and the girls would sing

together. We usually had a couple of maids, and they had time off in the afternoon and went down to a building at the end of the colony where the maids had their place to rest and bathe. That was one of the perks of the job, that they could bathe there. It wasn't always easy for them to bathe at home. They didn't live in, but they would come early in the morning, and after lunch they would go down there and rest and bathe and change, and laugh and sing. Oh, they would sit there and sing and sing, and you could hear them singing. When you'd walk downtown, everybody's radios would be going, and their maids would be singing. There was just always singing and music, and I missed that so much when I came back to the States.

Religion and Culture

Lee S: San Juan Day, which was June 24, was supposed to be the day when the rainy season began. It would get very hot and humid building up to this time, and then the clouds would burst and it would rain. On San Juan Day--I didn't know this the first year, of course, it was a surprise to me--the maids came in in the morning and said, "Señora, where is our soap?" It was a tradition, I suppose going back to St. John the Baptist, I don't know. They took the day off and went to the river and bathed on San Juan's Day, and you were supposed to give them soap.

I remember I said, "Well, all right," and I hunted up two bars of soap. [laughing] This one girl, I remember, put the bar of soap on her head and walked off with it on her head. I had never seen that. But it was easier to carry it that way. They went off and bathed in the river. I think they took the whole day off; I don't recall the details. But anyway, from then on I knew that on San Juan's Day I was to have soap on hand, and that they went and bathed. Of course, it was just a day to frolic.

Chall: Men and women?

Lee S: I guess everybody. They swam and frolicked.

Chall: Interesting. How long did the torrential rains last, the rainy season?

Lee S: The rainy season lasted a couple of months. It didn't rain all the time, but it would rain almost every day.

Chall: So it would keep you inside a lot.

Lee S: Well, it seemed to rain mostly in the evening, evening rains. And everything turned very green, of course. It was cooler when it rained. Just before it rained it got hot. And then there was a brief rainy season in the winter, around Christmastime.

Another thing, which maybe they still do, but I doubt it--there were people who made promises to God, or to some saint. I remember this particular girl that put the bar of soap on her head, she always wore white, because when her grandmother had been sick once, she had promised somebody, God or a saint, that if her grandmother got well, that she would wear only white for several years. And so she did. For several years she wore only white.

Chall: How interesting.

Lee S: And there were a couple of little children around town who were dressed as little monks, because their parents had promised that if they recovered from an illness, they would dress as monks for a certain number of years. And this was accepted, nobody thought anything about it. People would make a promise to wear some special thing, and it was all accepted as part of life.

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Lee S: There was a baby who died. Rene Wilson was a diamond driller from Cananea, up near the Arizona border, who spoke good English, so all the Americans liked him. He was also very handsome and a wonderful singer. He, his young wife, Celia, and their first baby were down in Tayoltita for the weekend and were getting ready to get on the truck and go up to the mine Monday morning, when the baby died. Just a tiny little girl, I've forgotten how many months old. That was a dreadful thing. We were all just terribly shaken by that. We hadn't really been aware that she was ill.

But one of the things with Celia was the issue of getting a black dress for her to wear immediately. Carlota Cordova, who was older, absolutely insisted that Celia had to put on a black dress. Celia had gone to school in Bisbee, Arizona, and was kind of American. She was Mexican, but she had a lot of American ideas. She didn't want to wear a black dress, and Carlota insisted that she had to put on a black dress.

At the time, that bothered me terribly, and the whole mourning customs of Mexico were very offensive to me. But as I lived there longer, I began to see the reason for this, and I came full circle on the mourning business. Afterwards, I thought, Carlota was right. At that point, Celia probably needed to do everything that she could to show her grief, and I later thought Carlota was right, that by putting on that black dress, she made some sort of gesture

that would help her. The dress that she had on the time was another color, I've forgotten what, and Carlota was very insistent that she had to change clothes.

Chall: Right away, before they went?

Lee S: Yes. They stayed down then; the baby had to be buried in Tayoltita.

Chall: They found her a black dress?

Lee S: It seems to me she had a dress with some black in it--but at any rate, she had to change clothes. Carlota insisted on that. I did change my mind about a lot of those mourning customs. I see that having a custom that you follow at that point is of some value. I think we suffer from not having enough structure sometimes. Now that I have more experience with death, I wouldn't go as far as they do with mourning customs, but I see a value in having tradition.

I also changed my mind on the idea of decorating the churches. I changed my mind greatly on that. I was so offended at first by these gaudy, beautiful churches, especially the ones with all the gold with poor people sitting around outside, but that was the only beauty there was in their lives. If it's not provided by the public, it's not going to be provided. They really loved those beautiful churches, and I don't think they resented the gold or the expense of it. They didn't seem to mind, and they gloried in the beautiful churches.

Chall: Well, yes, and it had a meaning for them. The gold in the church was not for them, it was for God.

Lee S: It was for God.

Chall: For God, and for their own afterlife and all that goes with it.

Lee S: So I changed my mind on that, too. I came not to resent it.

Chall: Did you ever discuss this with some of the people, or just came to find out what it meant to them?

Lee S: No. But I think they really exulted in this extravagant beauty.

Chall: Was there a padre in the community?

Lee S: At times there was. Not always, but most of the time there was. And then he had a <u>huge</u> circuit that he covered. Once we went up to the mountains with the padre to the Cordovas' summer place, and

that was a lot of fun. Wherever he stopped there were baptisms and weddings, sometimes weddings and then baptisms of babies who had been born since he'd last been there. If he was not there for a year or so, there would be babies born to people who hadn't been able to get married. But that was a very exciting trip that we made with him.

We stayed at the Vasquez ranch, and there were twenty-eight people in the Vasquez family all living in this big ranch house. Some were illegitimate children and some were legitimate children, and this was the first time I had run into this, where they were introduced as--I've forgotten how they indicated it, but it was made pretty clear which children were the children of the wife and which children were the illegitimate ones.

Chall: Oh, is that so?

Lee S: They were all there in the same house. [laughter]

Chall: A large extended family.

Lee S: That was fun, and the padre baptized five babies there, as I remember it, and then there were some weddings. It was a lot of fun.

Chall: How many days did that little trip take you?

Lee S: That was probably about a week. It took us a couple of days to get up there, and then we stayed a couple of days, and then came back.

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Chall: What about religion in your community?

Lee S: Most of us, of course, were not Catholics. Claire Peck was a Catholic, and she went to church downtown occasionally, and the Mexicans really appreciated that. But the rest of us just did nothing. John Foster Dulles' son--I think his name was also John, John Dulles--came in occasionally. I think he worked for Peñoles, for the refinery in Monterrey, and he was a friend of Paul Henshaw's. He would come to visit now and then, and it was always an occasion for parties; he was very good company. He and his wife had a Sunday school in Monterrey and he brought some Sunday school literature that Henshaws used. They had Sunday school for their children. But I think most of us just didn't do anything. We didn't have funerals or weddings or christenings or any religious observances like that.

Keeping up with News of the United States ##

Lee S: We could import books. We imported a lot of books and records. I had a standing order with a book shop in Wellesley; they would send me a box of books every couple of months.

Chall: Sight unseen?

Lee S: Just odds and ends, and it was always fun. We did a lot of reading. We didn't of course have TV or telephones, but we did have radio. In the evening, we got good radio from a clear channel station in, I think it was San Antonio, Texas. We always listened to the radio, got the news every night. We took the Sunday *New York Times*. In some ways, I think we were as well informed then as we've ever been. We made a big effort, and we often thought when we came back to the States that we were better informed than some of the people here about what was going on here, because we did have that necessity.

Chall: The *Times* would arrive about Wednesday?

Lee S: Yes. It was sometimes a week late.

Chall: But it didn't matter.

Lee S: It didn't matter. And with the other people, we discussed the news pretty well. The Morels and the Henshaws were intelligent, well-educated people. So we did keep pretty well informed. I remember the [Senator Joseph] McCarthy era, going through that, and we kept up on that quite well, I think. Better, I believe, than some of the people here in the States.

The Long Work Week for the Men ##

Chall: Was Lang was home for breakfast, lunch, and dinner?

Lee S: No, no. That was one of the problems. Breakfast early in the morning, and then he took a bucket, and he was not home until late in the evening. That was when he was working at Santa Rita, which was one big job he had. His first big job--they were transferring the end of the tramway terminal and building a new level in the mine. He was working really a twelve-hour day, so he left at five-thirty or six in the morning, and would come back at seven or so in the evening, at dark.

We were near enough the Equator so that there wasn't much difference in the length of the day. The days were the same length all year round, sunrise and sunset about the same time.

Chall: When did the sun set, usually?

Lee S: We were in a very deep canyon. The airfield was at 1,700 feet, and the mountains on each side were about 8,000, so it was a pretty steep canyon. Sunset was generally about seven. He'd get home a little before then maybe, around seven. So it was a long, long day. And this was six days a week.

And then on Sunday, the mine people would come down. There were two or three families who lived way up at Cinco Señores, at the mine, which was three hours away by truck and mule. They would come down; there would be a big party Saturday night. Everybody got drunk. I mean, this was the measure of a good party: it wasn't fun if everybody could walk home. [laughter] I'm exaggerating, but there was a lot of heavy drinking.

The manager, Larry Morel, was a great fellow. He was a product of the twenties who could drink all night and work all day, and never seemed to feel the effects. One of the traditions was that when anyone left, there was a despedida, a farewell party, the night before. The airplane usually left about five or five-thirty in the morning, and a good despedida was one that put you on the plane.

Larry was one of these people who could drink all night at the despedida and go over and put someone on the plane, and then go over to the office and work all day. He just could do this. And of course, New Year's Eve; I've already mentioned that.

On ordinary weekends, after the Saturday night party, on Sunday morning about nine o'clock, somebody would knock on the door and say, "Señor Morel is looking at the maps in the office," and all the fellows would go over to the office and look at the maps. Of course, they loved this, they enjoyed looking at the maps, and they'd look at the maps all day.

Chall: Those were the maps of the mining--

Lee S: Yes, the mine maps. You have to understand this about miners; they love to look at maps. I did resent this; it was very hard for me to get used to this, because I was spending my week days, long days, especially before the children were born and I was alone. There wasn't much for me to do, and I wasn't that happy with some of the people, and I really looked forward to my time with Lang, which was very, very precious. There was not a lot of time

allowed, or left, for him. I kind of resented the fact that so much work time was taken on Sunday as well, but that was the only day that everybody was there.

Chall: Oh, I see, all together.

Lee S: The men were scattered at different places during the week, and Sunday was the time to go over the maps. It wasn't every Sunday, I guess, but it seemed to me it was. I wasn't too happy about that; I'm sure the other wives weren't either. But anyway, that was one of the things.

Chall: They had got used to it.

Lee S: Yes. But the men did work long, long hours.

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Lee S: I suppose Lang must have talked about the change to the fifteen level; that was one of the big, big dramatic events in our life, when they changed the tramway line from the upper level to the lower level and they had to work day and night for a couple of days. The whole mine was changed overnight from one thing to another.

Chall: Tell me about that.

Lee S: One of his jobs when he first went there was to finish this haulage tunnel that was called the fifteen level, and then when they changed over to using it, they had to shut the mine down and change the tramway lines and change everything to use that haulage tunnel instead of the one they'd used up above. And it was a terribly exciting time for him and for all of us, and for me. He worked around the clock for a couple of days, I think. It was a very--one of those big dramatic times.

Chall: And so besides the miners, the whole community--

Lee S: It was a big event, yes. A major change.

Chall: A major engineering feat?

Lee S: Well, I don't think it was terribly difficult engineering, but it was--maybe; I don't think so. But it was a big planning operation to switch the whole enterprise over in the quickest time possible, plan ahead and get everything in place to do this.

Chall: So the whole town turned out?

Lee S: Everybody was excited about it, yes.

Chall: Was there a celebration of some kind?

Lee S: No, no.

Chall: Just all there watching?

Lee S: Yes. And they named the tunnel "Santiago," for Lang's father.

What You Do when the Help Leaves Unexpectedly

Lee S: One of the big stockholders in the company was Lord Hesketh. He was the heir of the Tevis interests. One Sunday, Larry Morel was away, and Lang was the acting manager. He got a radio message that Lord Hesketh was coming to Mazatlán and would be in the next day, and would we send the company plane to bring him in the following day!

There was a period of the year when trucks came up the river. This was a terribly important period for the mine, of course, but it was important for us because that's when we got things like cookies. Mainly cookies, and crackers that came in on the trucks, things that were too expensive to bring in on the planes, but they would bring them in on the trucks, big tins of cookies and crackers.

Oh, it was so wonderful. When the trucks came into town, it was a huge event for all of us to get some of those supplies, but also, it meant that the people could get out of town, so all our maids eloped when the trucks came! [laughter] They couldn't afford to go out on the planes, but when the trucks were coming in and out--

Chall: That was the time that they could get out?

Lee S: Oh, yes, and they all ran away. Sunday night was the night for dances. Saturday night is the night in the States, but in Mexico, Sunday night is the night you have your dance. So we all held our breath every Monday morning to wonder whether our maids would show up.

And this particular Monday morning, I got up and I had no help. My maid had eloped the night before, and knowing she was going to elope, she had not roasted coffee on Saturday, and she had not baked bread. I went out to the kitchen, and the plane was

bringing Lord Hesketh and his wife in. I had no bread and I had no coffee, and I had no maid. I was supposed to entertain.

Well, it turned out that Hesketh's bride was a chorus girl that he had picked up in London somehow, and she got off the plane and took one look and said, "Oh, my God." She said, "I want some brandy." Jane Briggs took her off with a bottle of brandy, and I didn't see her any more.

Lord Hesketh had had stomach surgery and could only eat baby food. [laughter]

Chall: So no problem?

Lee S: It was wonderful! Jane had brandy for his wife, and I had baby food for him. We managed to throw together a party with Mexican food and got everybody together. He was lovely; he was just one of the nicest guests we ever had, perfectly charming and understanding about the whole situation. But it just happened to work out very well.

Chall: Serendipity that you could never have anticipated.

Lee S: There were times when the help did not show up when life was very hard indeed.

Chall: Did you learn how to roast coffee and make bread?

Lee S: Oh, yes, I did. Once when we were over at Contra Estaca, which was five hours away by mule, the cook left in the night, and Lang got me up in the morning and said, "You've got to cook breakfast for the staff."

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Lee S: And this lasted for days. It was a long time before we could get another cook, and Marino Cordova kept asking for cream. He wanted cream for breakfast, and I was getting cans of cream from the store. I thought he wanted it for his coffee.

Well, it turned out that "crema" meant Cream of Wheat. He wanted hot cereal. He just called it "crema"--cream, not Cream of Wheat. I was making--who knows what, I was making whatever I could. So anyway, we finally got this straightened out, and I got him some Cream of Wheat, and he was happy.

Chall: Did you have to cook for the staff?

Lee S: There in Contra Estaca I did, because this woman had vanished, and there was no one else to cook. Since I was the only woman there, I had to do the cooking. The company would send food over by mule frpom Tayoltita, whatever I wanted that was available. It was five hours by mule.

At that place, there was a staff dining room. We didn't ever live there. We would go over and stay in this staff house. We ate in the dining room with everyone else. It was like a hotel. There were a lot of men working there that had to be cooked for, mostly bachelors. They weren't families. I didn't go over later, because it was a very dangerous trail ride, I thought.

The last time I went, Kim was a baby, and the arriero, the muleteer, was carrying him on the mule. The saddle cinch gave way, and they fell. It just happened that they fell at a place where there was--they were crossing the stream--and they weren't hurt, but if that had happened on the high trail, they would have been killed. So I never went back. And sometimes, they could get trucks up there later. I was afraid of that trail. [laughs] But it was all educational.

Chall: Oh, yes. What an education!

Going to the Movies

Lee S: And the movies--I suppose I should mention movies. At that place at Contra Estaca, there was a little store run by a man named Don Salvador. He showed movies occasionally, Mexican movies. We had to go. We tried once not to go to the movie, and he sent word for us that he wouldn't show the movie unless we came, or something. So we had to go up. He showed them in the store, and we just sat on boxes and things. He showed the movie against one wall of the store. That was sort of an experience.

Chall: Well, that was a special night then, when the movies came to town.

Lee S: Yes, it was a big celebration. And then in Tayoltita, the movies were held in an open air movie theater that also doubled as a bowling alley. Don José showed the movies there, and he wouldn't show the movies until he had a good crowd. People wouldn't come until they thought the movie was going to start, and so sometimes it would be eleven o'clock before the movie would get going. But movies were quite a big event.

Chall: And these were all Spanish?

Lee S: Mexican movies, yes.

Chall: So you needed to know your Spanish.

Lee S: Right. Some of them were pretty good movies. Cantinflas was a Mexican movie star, and his movies were pretty good.

Well, I think those are the main things about Tayoltita. It was a good time. We had a lot of fun, and tragedies and tears and laughter all bound up together.

Chall: And your father-in-law was right about your marriage?

Lee S: Oh, I think he was. It was a place that really made you--you had to depend on each other a lot. And as I say, I learned a lot about being dependent. I guess that was the hardest thing, was that you were terribly dependent on other people, whether you liked it or not. You had to be.

Clothing, Food, and Status

Chall: I just want to go back and ask a question: it was about your clothing, because you said at first that you brought a lot of clothing down, and then at another time, clothing couldn't be brought in there. So what did you wear? What did the women wear?

Lee S: We sewed. We did a lot of sewing and made a lot of our own clothes. The local store had a lot of pretty, bright cottons that were cheap, and I got a Singer sewing machine which I still have. It was made in Canada, and I bought it in Mazatlán. Singer Featherweight, which was a wonderful machine. I made all my children's clothes, all my clothes, and I made shirts for Lang. It was something to do, it was fun, and of course, as your children grew, you really needed to be making their clothes, because they changed size so quickly. But when we went out, then we would try to buy clothes for a year or two, but we couldn't always--. But it was fun to sew. I think all of us sewed.

Chall: I see. Get your patterns, and exchange patterns.

Lee S: Right. It was just kind of a hobby that most of us developed. I made doll clothes, and clothes for the children. We weren't very dressy most of the time. It was warm, and we wore cottons, just skirts and blouses and dresses.

Chall: What did you do about your legs?

Lee S: Well, you took shoes, but mostly we wore huaraches, sandals, and didn't wear stockings most of the time. In fact, there's something I should mention in connection with our life in Tayoltita. In 1950 there was a census, and I remember that Juanillo Ley came up and was the census taker. Evidently, every fifth or tenth person was supposed to answer an extended questionnaire, and he took advantage of the chance to find out about us. [laughter]

I remember one of the first questions was, "How many children do you have, and how many children does your husband have?" I said I had one, and that my husband also had one. He was very dubious about that. "Are you sure your husband only has one child?" It didn't seem right to him that that figure was so low, and was the same for both of us.

Then there were some sociological questions. One was what kind of roof do you have--tile, thatch, flattened cans, or whatever. One question was, "What do you customarily wear--do you wear shoes or huaraches or do you go barefoot?" I told him the truth, which was that in my home I either wore huaraches or went barefoot. He wouldn't put that down. He said, "Oh, no, Señora, I'll have to put you down as wearing shoes." Which sociologically was correct: I belonged to the shoe-wearing class. I kind of argued with him, but he probably was right. But we did not wear shoes in the house.

The first year I was there I wore shoes, and I got a horrible case of athlete's foot, really a severe case of athlete's foot. After that, I sensibly wore huaraches or went barefoot and kept my feet aired.

But another question was, "Do you eat bread or tortillas?" I said we ate tortillas, and he said, "No."

Chall: Because you don't belong to the class--

Lee S: And he put us down as bread-eaters. Of course, we ate bread for breakfast, but for lunch and dinner, we usually had tortillas. But he wouldn't accept that. [laughter] And the other questions were about your water source, whether it was from a spring or from a well, and your toilet--questions to establish your standard of living, which was interesting, I thought.

There was one incident that I might mention. The 16th of September was the big Mexican holiday. It must have been the third--well, anyway, one 16th of September when I was fairly new there, we were having a little party in the colony, and then the people wanted to go down to the plaza and join the party down there. I wanted to go. It seems to me we had a child or two at

that point, and I wanted to go and leave the children. They were asleep, and I thought it would be all right to go down for a few minutes.

Lang refused to let me go. He wouldn't go, and said I couldn't go either. It's the only time he ever did anything like this, and I was terribly upset, and puzzled. I thought one of us could go, and he said no, that we could not go. I was just really taken aback by it.

But it turned out that there had been a threat, which he didn't want us to know about. Only he and Larry I guess knew about it. But they had received a threatening letter saying that somebody was going to be kidnapped if they didn't pay a certain amount of money. And eventually it turned out it was a schoolteacher there in the government school who was trying an extortion, and wanted money. Eventually they caught him, and it was kind of a sad case, but this was at that particular time, and Lang, of course, was afraid to have us go to the plaza, and certainly didn't want us to leave our children. But it upset me at the time. I didn't know what was going on.

But that's the only time anything like that ever happened, the only time we ever felt any threat at all from anybody. That was certainly an aberration. It was a very safe and comfortable community.

Tayoltita was also a presidencia, the county seat, so it was kind of an important little town as well as a mining town.

I guess I should also mention that I was very much criticized because I didn't have Tina's ears pierced when she was a baby. The Mexicans could not understand this. They just couldn't understand why, when I was so rich and could afford earrings, and I had this lovely little baby, I didn't want her to look pretty. They argued and argued with me that I should have her ears pierced so she would be pretty and have earrings. They never understood why I didn't want my baby to be pretty. And I of course would not pierce her ears for anything! [laughs] It was a real problem. Nobody could accept the fact. And also, I let my children go barefoot, and that was not appreciated.

Chall: Not appreciated by the Mexicans?

Lee S: Because I could afford shoes. My children should not have gone barefoot. I was criticized for that.

Chall: It had nothing to do with health.

Lee S: My pediatrician up here said, "Let them go barefoot until they're ten if you can." But the Mexicans did not appreciate the fact that my children were going barefoot.

Chall: On the one hand, they wanted you to pierce the child's ears because that was their custom; on the other hand, they wanted you to wear shoes because--

Lee S: Well, shoes are their custom if you could afford them. I guess they thought it was reverse something or other for my children to be going barefoot.

Chall: Yes, you were perverse.

Lee S: But in general, they approved of me, I guess. At least I made friendships that lasted for many years, even after we left Mexico.

##

Lee S: I should mention one special party that I gave.

Chall: Another gaffe?

Lee S: This was not too long before we left, I guess, when I'd been in Mexico a number of years. Bob Morel became engaged to a lovely young woman, Beverly McCauley.

Chall: Bob Morel was the son of Larry Morel?

Lee S: Yes. And he was graduating from Cal, and so was his wife, his fiancee. I think this was the first time that she came to visit after they were engaged. I decided to really go all out and give a big shower for her. I liked Bev, and since then she has lived in Tayoltita and Mazatlán and has loved Mexico.

So I planned a Mexican shower. I used Mexican pottery plates and Guadalajara glassware, and I planned the meal, which was all of my favorite Mexican food, which were everyday dishes. I never did think tamales were worth the bother to make them. I remember one thing we had was chilaquiles, which I just loved; actually this was something that you used your leftover tortillas for. It's like a casserole dish with toasted tortillas and cheese and chile, and it's just delicious. And I think I had tacos and enchiladas. I did not have tamales. And I probably had fresh fruit for dessert, because I thought the papayas and bananas were so delicious.

Well, anyway, afterwards, Doña Nicolasa, who was the grande dame of the Perez family and had been a good friend of my mother-in-law, came to call on me and told me--she was very concerned and

very loving about it, this was just done out of love--that I had committed a horrible social gaffe, in serving this kind of food on that kind of occasion, and on those plates and so on, that I should have used my best china, and I should not have had chilaquiles and tacos, because those were the food that people had every day. I should have had tamales and mole, and I suppose baked an angelfood cake or something of the sort. I just had the wrong kind of food, and she was very hurt. I think she was embarrassed because I had not showed Bev upper class Mexican entertainment. She was grieved for me. But Bev thought it was just fine, and I did too.

But Doña Nicolasa was very hurt that I had not put a better foot forward. It was sort of like serving macaroni and cheese, I guess, for an elegant lunch, or peanut butter sandwiches.

Chall: Status kind of thing, isn't it. That's very interesting.

Lee S: Right. And the other thing, when Christine was little, I dressed her sometimes in her brother's hand-me-downs, little shorts and shirts and things that had belonged to him, and I didn't have her ears pierced. I also let her go barefoot. They spoke to me very earnestly about this.

The Swent Babies Were Born in the United States: No Easy Matter

Chall: Let's see, Kim [Jay Kimpston] was born in--

Lee S: He was born in 1949, September. I came out at the beginning of August just a few weeks ahead of time.

Chall: To where?

Lee S: Here to Piedmont. Because my parents lived in Lead, and there was no public hospital there. Just the Homestake hospital, which I couldn't use. So I came here to Piedmont, four weeks in advance, and Kim was born September 2, 1949. Then Lang came up when Kim was six weeks old, and we took him back.

And then Tina [Christine Waterman] was born in April of 1951. I was homesick--I wanted to go home for Christmas. So we went to South Dakota for Christmas, and then Lang went back to Mexico, and I stayed on a couple of weeks. I was on the way back to Mexico. We were in El Paso, I had Heladia with me, and Kim. I was pregnant. And Lang's mother died. Somebody called me--it wasn't even Lang--someone called me in El Paso when we were getting the

plane, and said, "Don't go to Mexico; come to San Francisco instead."

So I came out here, and by then, after I had a couple of weeks here with the funeral and everything, by then it seemed too late for me to go back to Mexico and come back for her to be born. So I stayed on with Lang's father.

Chall: Oh, you were here a long time, then.

Lee S: Tina was born in April. That was a very difficult time for me. Lang's father was grieving, and no help--I mean, no help to me. He was obviously very grief-stricken. It was a very unexpected death. She'd had a stroke and she was only sixty-two. So he was just totally crushed, and I was pregnant, and Heladia was upset because she wanted to go home, she was homesick. It was awful.

And then the baby was born, and Lang couldn't come out, of course, because he'd used up all his time. Then the Mexican consulate lost the papers once, and we had to start all over applying for her papers. I didn't get back to Mexico until late June, and by then I was just--it was awful. I was a mess, and Heladia was so miserable.

Chall: That was almost six months away?

Lee S: And then Richard [Richard Langan] was born two years later, in July of '53, and the doctor that I had had here was sick and couldn't take any patients, and also Lang's mother was dead, so there didn't seem to be much reason to come here. I still couldn't go to Lead, so I just went to Denver, because it was the only place I knew to go. So I flew up to Denver and rented a house that was furnished that was near the hospital, and found a doctor, who turned out to be a very good doctor, much better than the doctor I'd had in Piedmont.

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Lee S: Then Mother came down from Lead and brought a girl named Jeannette Harvey from Lead who was a teenager and a babysitter, and we rented this little house and stayed there for a couple of weeks while I waited for the baby.

Chall: And you had your other two children?

Lee S: Yes, Kim and Tina were there. I drove myself to the hospital. [laughing] Mother was more upset than I was, but she had to take the car back after I checked myself in. I remember she was so nervous about all of this, and there was a discussion of who should

drive to the hospital, and she was too nervous, so I did. [laughs] But I don't remember much about that. It was kind of a thing I've repressed, I guess. Anyway, Richard was born.

I remember when he was nine days old, I had to take him downtown to a photographer to get his passport picture taken. I drove downtown, and that was kind of hard, getting that picture taken, to apply for his papers. Anyway.

Then Mother drove Kim and Tina and the babysitter up to Lead, and I flew up with the baby. At that time, planes were landing in Spearfish, and I think Richard was about twelve days old. Lang came up six weeks later, and we came out to here to California first to see his dad, and then went back to Mexico.

Chall: You really had to learn to wing it alone a lot.

Lee S: Yes. It was hard. At the time, I just assumed that was what I did. I didn't feel particularly noble about it. Later looking back on it, I thought I was pretty noble. [laughter]

Chall: Something the wives had all been doing.

Lee S: Yes. I didn't really at the time seem too martyred. Of course, everybody else there was doing the same thing. I could have stayed in Mexico, and I was too cowardly to do that. So it was kind of copping out to come up here, and I didn't dare complain about it.

Chall: Yes, I see.

Lee S: But it was hard.

Chall: It must have been.

Lee S: And probably harder on the children than I realized. It might have been hard on Kim, but at the time, I guess I didn't think that it was.

Chall: It's hard to know; it might not have been at all.

Lee S: Yes. I didn't get to Mazatlán very often. I didn't know anything about Guadalajara until later, we went back on vacation once to Guadalajara. And I didn't get into Mazatlán very much. Lang went down and had some dental work done for quite a while. I never did go to the dentist in Mazatlán, I was lucky to avoid that. Although there was a good dentist there. His name was--we would pronounce it Bates, his name was Bates [pronounces "ba-tase"]. Sezueta Bates, I think was his name. Evidently a very good dentist, but I never went to him.

Chall: Did you only go out when you were pregnant--to the United States?

Lee S: Virtually, yes.

Chall: About every year and a half or so.

Lee S: Yes. And of course, that was enough at that point. [laughs] Most of the women if they weren't having children would go out once a year. You had to shop for things that you couldn't get there. One thing was bras. It was really hard to get--you couldn't buy bras in Tayoltita, and in those days, there was this embargo; you couldn't get things from the States. I do remember I got the Best and Company catalogue for some reason. But we couldn't import clothes. So those were the kinds of things that you really had to just stock up on when you went out to the States.

Chall: So whenever you were pregnant, you had the opportunity.

Lee S: I suppose it was an incentive to have a baby every year.

Chall: If other people went out, would they sometimes be able bring things back?

Lee S: Oh, yes, they would shop for you.

Chall: What about diapers? Were you able to get those in Tayoltita?

Lee S: No. Brought everything like that from the States. And used them until they collapsed completely. Of course, they didn't have the plastic kinds of things that you have now.

Chall: No, and you wouldn't have used them anyway, in that climate.

Lee S: That's true. But you had to plan ahead.

Chall: Yes, I see.

Learning to Cope with Isolation and Confinement

Lee S: Or do without. It was easy enough to do without most of the things people here think you have to have. [laughs] I guess the thing that bothered me the most there was the isolation and being confined, so terribly confined, with the people. It was a challenge. There was no intellectual stimulation really, except what you could find yourself. There just was no input from outside.

Chall: So your reading--

Lee S: Did a lot of reading.

Chall: Getting books in.

Lee S: But often there wasn't anybody you could talk about it with. There just wasn't the variety of companionship. Even if people had been extremely congenial, there wasn't much variety. Just that few people.

Chall: Fortunately you were compatible in many other ways.

Lee S: Yes. But it put an awful lot of--you got terribly close to your spouse, I think much closer than you do in most places--because you depended on that person for everything. You had to be everything to each other.

Chall: Fortunately you had a good marriage.

Lee S: Yes. Well, it either made it or broke it, and it obviously did work. But it was putting an awful lot onto a marriage.

Chall: How were the other marriages among your group?

Lee S: Well, most of them seemed to work all right. I think they did. They've stayed married. One of the women, Mrs. Benham, was--I don't know what the technical term is--but she was mentally very ill. When she was well, she was just a delightful, lovely person, but then she would become convinced that her husband was trying to kill her. And he was the dearest, sweetest, most loving man in the world, and she--it was a terribly unsettling thing. I remember once she had a party and he had sent to Mexico City for a box of wonderful chocolates, and she wouldn't let any of us eat them. She said she knew they were poisoned. [laughs]

Chall: Oh, how sad.

Lee S: It was just tragic. And then every once in a while, she would go out when it got too bad, she'd come up to the States and have shock treatments, and then she would come back and be fine again for another year or so, and then she'd get--I suppose it was a menopausal thing, but it was just awfully hard for all of us to deal with because she was such a nice person.

Chall: And you all just had to really rally round.

Lee S: Just had to--didn't know how to deal with it. I remember she came over one morning to my house, dropped in for coffee and told me her

husband had tried to kill her the night before. It was terribly unsettling, because I just didn't know what to say. Then after a while, as I say, she'd come up for treatment and be okay. She might have been much better off here, it could be dealt with in a better way. But it was very educational for me. [laughs]

Chall: Yes. Well, you certainly learned a lot during those years.

Lee S: Yes.

Chall: In the way of life and living, that stay with you forever.

Lee S: They do.

Chall: I'm sure they molded your character in some way, they certainly must have.

Lee S: Well, I guess so. It was a challenge. [laughs] I guess learning Spanish was the big plus.

XIV LEAD, SOUTH DAKOTA, 1954-1957

The Switch from Spanish to English: The Effect on the Children

Lee S: The Henshaws left a year before we did. Paul came up to work for Homestake. And then Lang was offered a job at Homestake. It was a hard decision to make, because we were pretty happy in Tayoltita, and he had a good future there. But we decided it was time for the children to start school, and you couldn't always time these things right. I wasn't really wild about going back to Lead, but it was a good job, so we decided then and moved back. We left at the end of May in '54.

Rich was ten months old at that point, and a very good baby. We went to Mexico City for a couple of days, and he was fine there. Then we went to Louisiana, to New Orleans. The plan was that we were going to fly up to Michigan and buy a car, and then drive--take a little vacation and get to South Dakota. Well, we got to New Orleans and decided instead to buy a car there, and drove from New Orleans up. Had a nice little trip of it; it was a lot of fun.

But one of the first things that happened was that Kim--I'll bet Lang mentioned this--Kim was puzzled because the dark-skinned people didn't speak Spanish.

Chall: Yes, he told me.

Lee S: And Rich, at ten months of age, who had been a good baby, started just screaming all the time, screamed and screamed and screamed and wouldn't sleep, and cried and cried and cried. We got to Lead and he cried and cried and cried. It was just terrible. For months, until--

Chall: Really, months?

Lee S: Well, I won't go into all the details--but we discovered that Italians, who called him Ricardo, he loved, and then when the Mexican boys, Chato and Raul Cordova, came up to live with us, things settled down. We had changed his name. He had been Ricardo, and we started calling him Richard, and we were speaking English, and there was no Spanish. Although he was only ten months old, I think it was the language that just upset him, that he was aware of this change.

One of the first things he ever said when he started to speak, he said, "Me Carco." So we called him Carco from then on. We tried then to talk some Spanish to him, and of course, the Mexican boys spoke Spanish to him. I think that even at ten months, losing the language was a very traumatic experience for him.

Chall: He really had a culture shock. My question to you would have dealt with the culture shock, but I hadn't thought about the children.

Lee S: It was very hard for him.

Chall: I realized that Kim didn't understand why the Negro wouldn't speak Spanish to him.

Lee S: Yes. And he and Tina supported each other. They would talk Spanish to each other. When they played, they spoke Spanish, and they became very, very close, and bonded in their Spanish at that point. But the baby, of course, had nobody. It was tough on those children to change languages. I realized that.

And of course, it was hard on me to come back to the States, especially with the two extra boys. We weren't able to find a house for a while. We stayed at my folks'. It was a busy, busy time.

Chall: You brought the boys because their parents had wanted them to go to school in the United States?

Lee S: They would have been going out to boarding school at that time, probably to Monterrey or Chihuahua, but we thought it would be fun to have them come to the States, and offered them the opportunity to learn English. And they were pleased, of course, and nice boys. We are still so close to those boys; they're like sons. It was wonderful to have them.

Chall: Yes. Well, if you hadn't had them, you might not have understood what was the matter with Richard, either.

Lee S: That's true. They were a lot of fun.

Settling Down in the Old Home Town Among Family and Friends

Lee S: Going back to Lead was--well, it was different to go back to your own home from a different situation.

Chall: With your parents probably still thinking of you as a little girl?

Lee S: I suppose so. It was fun to be back in Lead. We had a Monday night bridge club, four women in the neighborhood. We all had little children, and we agreed that Monday night would be just awful if we didn't get out. So our husbands stayed with the babies and we played bridge Monday nights. That was kind of a life saver. Of course, a woman's place is in the home definitely at that time of life. It was mostly just taking care of children.

Chall: You didn't have servants then to help you.

Lee S: Oh, no. Well, Mother had cleaning help, but that was all.

Chall: It was not the same. Of course, you could buy bread now.

Lee S: Yes, you could buy bread, and there were washing machines, and lots of conveniences. But it was a very busy time. Mostly all I did, it seems to me, was cook and take care of children.

Chall: Did you miss the companionship of the Mexican women?

Lee S: I missed the music. I missed the singing and the jollity and the parties and the music very much. And of course, the nice weather. I did miss that. I missed it a lot. Lang was working again awfully hard. I guess the music was the thing I missed the most, and of course the baby care, the child care, the Mexicans.

Chall: Yes, and more free time--

Lee S: Yes. I wasn't doing much reading or sewing now.

Chall: Did you go into volunteer work at all? Did you have time for that?

Lee S: I got involved with helping at the library a little bit. The librarian was a friend, and somehow I got on a commission to support the library, and did a little bit of that. And of course, the kindergarten mother's club was a big thing. I was in PEO, which is a women's educational organization, and AAUW. I was in a church circle, and bridge. Those were the kinds of things.

Chall: So your life almost went back to what it was like when you were growing up--your mother's life.

Lee S: Almost, yes. And then when we moved into our own house, the company remodeled the Glover house for us, which was a house that had been built by Mary Baker Eddy. I imagine Lang mentioned that.

Chall: Yes, he did.

Lee S: I did have a couple of household helpers. One who was an old school friend, Lourine Hancock--Schmidt was her maiden name. She was a Sioux Indian. We'd been friends and neighbors. They lived just a few doors from us from the time that we were both little girls. I knew she was an Indian, but we had never talked about it. When she worked for me then, we got much more intimately acquainted, and I realized that she had much more consciousness of her Indian culture than I had ever known. It had never come up. She told me about sitting on Sitting Bull's lap as a little girl. And her mother had cooked a lot of Indian food, dishes of parched corn and so on. She was much more attuned to her Indian background than I had ever known, and was very proud of it.

She was a very active Episcopalian. Her family had come from around Pine Ridge where there were Episcopalian missionaries, so that was her church connection. I enjoyed getting acquainted with her again on a different level, and learning about her Indian background.

Chall: She probably was more willing to talk to you about it because she know you'd had some culture changes too.

Lee S: Right. So we had a lot of very interesting conversations. And we're still friends; I talk to her when I go back, I see her.

Then the next year, we had Hector Escutia come up. We had this wonderful big house, and a hospital, and everything was all set. For the first time, I could have a baby like anybody else, and have my husband there when I delivered the baby. Lang had never been there when I had any of the children. I had always had them all alone, and he'd never seen any of them until they were weeks or months old. We thought this was the time, it would be wonderful to just really enjoy a baby, and we had this big house.

Lang Goes to Grants, New Mexico; Lee Stays Behind

Lee S: I got pregnant, and about a month later, he was transferred to New Mexico. And there was no hospital there either. So the last six months that we were in Lead, Lang was in Grants, and I stayed in Lead because there wasn't housing in Grants. I had these four

children, three little ones and Hector Escutia, and it would just have been too hard to try to move them at that point. Lang couldn't handle it either. There wasn't a place for us in Grants; we couldn't very well go to live in a trailer.

So I was alone in Lead. One of the principal things about it was that I found out what widows go through. I was not invited to a single thing. Kiwanis night was Monday night, and that's when the men went to Kiwanis. Occasionally, somebody would invite me for supper on Kiwanis night, but because I wasn't a couple, I was absolutely dropped from any other social activity. Of course, a lot of the social lives centered around bridge, and you needed couples. And people also probably thought since my parents were there, that I was well taken care of. But it was quite a shock to me that I just didn't exist at all after five in the afternoon. [laughter] The women's things continued, but every other social thing was just closed to me, and that was quite a shock.

And the children weren't well. Christine, in fact, very nearly died of scarlet fever. We later thought maybe some of these things were in the wallpaper at that old house, because they had a lot of illnesses which seemed to be in that house.

Then in May, Lang came up, and we dug the toys out from under the snow. There had been a surprise blizzard in the fall that had caught us with toys out in the yard, and it was a very hard winter, lots and lots and lots of snow. On Memorial Day, we had to dig through the snow to find some of the toys. We rented a U-Haul and took off for Grants.

Chall: There was a whole other adventure.

Lee S: Yes. I was just as glad to go, although it was hard, too. The children had enjoyed having the grandparents nearby, and I had too. And I loved that nice big house, and to go into a house that was 900 square feet was--. Lang had found a little house to rent, and it was only 900 square feet.

Chall: Pretty small for six of you.

Lee S: It was impossibly small.

Chall: Did you take little Hector with you?

Lee S: He was sixteen years old and a big youngster. Yes, we took him there for a few days and then sent him on to Mexico. This was the end of the school year. Across the street from us the same weekend, a family moved in, the Crosslands, who had six little children. The oldest was the same age as Kim, and then there were

twin baby girls. They had been living in a trailer up in Moab. They moved into the same kind of house, and Doreen said, "Oh, isn't it wonderful to have such a big house!" [laughter] She was thrilled to have a house at last. And I had moved from this huge Victorian, and I felt so restricted in this tiny house.

Chall: All relative, isn't it?

Lee S: It is indeed. So we moved there--this was the end of May, Memorial Day weekend. And then on July 4, Lang took the day off, and we moved across the street to a slightly bigger house. That's one of the hardest things I think I ever--it was so hard. We had also moved shortly before Richard was born. Henshaws left in the spring of '53, and we moved into their house, and Rich was born at the end of July. When you move next door--and there were no movers, nobody--we just walked back and forth with armloads of things. That was hard, eight months pregnant.

Jeannette is Born and the Family Moves to Grants

Lee S: And then July 4 we moved across the street, again carrying things back and forth. On July 20, I flew up to Denver--Lang went with me, and the three children--and we picked up the Sunday paper and found a place furnished for rent, and rented it that afternoon, and on July 25, Jeannette Frazier was born. We had moved on July 4, so that was a tough month. Physically, it was as hard as anything I've ever done. Looking back on it now, I don't know how I did it.

Chall: Just moving itself is not easy, and when you're--

Lee S: Eight months pregnant, it was very hard.

Chall: And all the little children racing around you.

Lee S: Yes. But Mother and Dad came down from Lead, then, too, and helped. Lang stayed until after the baby was born. He saw her when she was an infant. Then he went back to Grants, and we flew down there a few days later. So he did see Jeannette when she was a baby, although he was working such long hours, he didn't see much of her. But at least I finally had the fun of having a husband when I went into the delivery room.

Chall: Yes, that's right.

Lee S: That was the one thing that was very hard, the business of having the children. I've often wondered whether it wasn't hard on Kim. It probably was.

Chall: Moving so much?

Lee S: And maybe not having Lang when he was a baby. I don't know.

Grants was a real challenge, too. There was no hospital there. The Anaconda Company had a clinic, and I could have had the baby there, but as it turned out, if I had stayed that day, there was what they called a gully washer in that country, and the little bridge washed out that connected our housing area with the town, and I would not have been able to get to the clinic, and I would have had the baby in the back bedroom that day.

Chall: Unattended.

Lee S: Yes, unattended. So it was just as well that I did go to Denver, although I could have gone to Albuquerque. But because Rich had been born in Denver, and I liked the doctor, I did that.

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XV GRANTS, NEW MEXICO, 1957-1966

An Old Established Community, Now a Boom Town

Chall: When you got yourself settled in Grants, I believe you said you moved into a very small house, and then you moved across the street. I think at that time you were pregnant.

Lee S: Yes.

Chall: Yes, and then you left to go to Denver to have the--that's the fourth baby?

Lee S: Yes.

Chall: That was Jeannette.

Lee S: Yes.

Chall: I was curious about your contrasting this mining community at Grants, during your first years particularly, with that of the more stable old mining towns that you were now used to at Lead and Tayoltita, even though they were different. But they were established, and in this case, you were dealing with something that hardly existed.

Lee S: This was a boom town. There were some significant differences personally. In Tayoltita, we had lived in Lang's hometown; in Lead we had lived in my hometown. So this was the first time that we lived in a place that was new to both of us. It was very definitely a mining boom town, with all the problems of boom towns, but it also was interesting, and what made it so wonderful for a place to live, was that there had been--there was an old established community there already, which is, I think, unusual. Mines don't usually come in on top of another community.

But Grants had been a fairly significant stop on the Santa Fe Railroad. The name, I think, came from somebody who worked for the railroad. Of course, before that, there were the local Indian pueblos, Acoma and Laguna, which were nearby. There were Navajos in that region also. And there had been Spanish there for hundreds of years. So it had been a significant railroad stop, and then recently, before the mining, it had boomed as a carrot-growing place. It grew the most wonderful carrots in the whole wide world. The Bluewater Valley had decomposed volcanic soils that were very fertile, and the carrots were just wonderful. So there had been an agricultural boom there; some people had come in with that. And also lumbering was there, there was a sawmill there. And there was a little perlite mining facility.

So there was a community of a few thousand, which was the shopping center for a much larger rural community. And then the mining came in on top of that. One of the--well, Lang probably discussed all this, but one of the decisions was whether to build as Anaconda had done, to put their housing and everything out at the mine, or whether to put it in this existing town. Homestake opted to go with the town, which I was glad for.

But the end of town where we lived, which--I thought I'd never forget the number of the precinct, but anyway it was a precinct, and it had had--oh, I've forgotten, I think a couple of hundred registered voters in it. All of a sudden, it had over 3,000 residents. So one of the first things that I did, and this was just almost immediately, was to go out and start registering voters. Partly this came about because I had helped with something similar in Lead. The Kiwanis Club in Lead had had a voter registration campaign, which involved probably twenty or thirty people to register a handful of new voters. But here we were with these thousands of new people.

I didn't have any connection with the community yet. So first of all, we wanted to register to vote ourselves as Republicans, and we learned that as Republicans, you couldn't just go in and register to vote. That if you registered in a lot of the normal places, your registration would get lost on the way to the county seat, because everything was so tightly controlled by the Democrats.

So somehow I found out that if I went way downtown to Cy Rouse's real estate office, that he would register Republicans and would see to it that their registrations got down to Las Lunas to the county seat. But he was the only one in town who could guarantee the Republican registration. He was old and not always in his office.

Lee Registers Nearly Three Thousand Voters: Beginning Involvement in Political Life of New Mexico

Lee S: So I investigated, found out how to get a notary seal, and became a notary public. That authorized me to register people to vote. So I would put Jeannette in her little--I had one of these sling carriers to carry her, and I just started out going door to door. Between feedings, I just would go to all these housing areas, trailer camps and so on, that were in that area, and just go door to door and ask them if they were registered, which of course none of them were, and offer to register them.

Chall: As anything?

Lee S: As anything, whatever. I ended up registering almost 3,000 people.

Chall: Is that so! You didn't get any help along the way?

Lee S: No. I just went door to door, and introduced myself to people. It was a very educational experience. A lot of these people had come in from Oklahoma and West Virginia, places that were depressed mining areas, southeastern Missouri, and a lot of them were women that had no intention of ever voting. Anyway, it was very educational. Some people were quite antagonistic to the idea, and some welcomed it. But I did get more than 2,800 people registered. It was a lot of fun.

Chall: What an achievement!

Lee S: Yes. And as a result of that, later I was asked to be precinct chairman. After the first election, then they split it off into a new precinct, and I was asked to be chairman. That was a major activity. I was precinct chairman for several years. I was precinct chairman at the time of the Nixon-Kennedy election. That was certainly an education.

Chall: How many hundreds in the precinct?

Lee S: Oh, a few thousands of people in this precinct. And the ballot was a paper ballot that was two or three feet long. There were candidates and initiatives, and it took everybody forty minutes to fill out the ballot. They had to keep the polls open until midnight, and then we sat on the ballot boxes to protect them all night. [laughs] I'm sure Lang told about that. It was a very exciting time. But that's how I got into the political world. I had never done it before.

We really enjoyed meeting the people in politics. The old-time residents were Republicans; the newcomers were mostly Democrats. The Pueblo Indians, who had signed their charter with Abraham Lincoln, were mainly Republicans. And a lot of the old, old-time Spanish people were Republicans.

Chall: And you met some of them along the way?

Lee S: Yes. So we got acquainted with them. There was a particularly wonderful family in Grants, the Gundersons, who had been there for a long time. The Bond Gunderson store was the big store in town. The Gundersons were Republicans, and wonderful, wonderful people. There were marvelous community people there, just such good people. It was a good community that we came into.

Chall: Did they find themselves just engulfed by all these newcomers, and resentful?

Lee S: Oh, no. They made a lot of money. Well, there were others in addition to the Gundersons, but we became particularly fond of the Gundersons. They had the local bulk gasoline plant, among other things, so of course, they made a lot of money, and their store that sold refrigerators and sofas and electric mixers and things. No, they welcomed the newcomers very definitely.

Chall: It was a boon for them. Did this mean that you were no longer close to the staff, the men of your own staff?

New Social and Civic Options

Lee S: The other thing that was special about Grants was that there were all these other mining companies. So you weren't limited in your social life, either to mining people or just to the people that worked for your company. So I was able for the first time to just make friends regardless of job. My neighbors--and the housing wasn't segregated by company, so my neighbors didn't work for Homestake, and many of my friends did not.

I already belonged to a women's organization called PEO, so I joined that chapter there. That's how I got close to people like the Gundersons, because the women of this town who belonged to that, of course, had no connection to mining at all. So that was a real source of good friends.

Chall: I've often wondered what PEO stands for.

Lee S: It's a philanthropic and educational organization. That was started in Iowa over 100 years ago, and it's very middle western. And then, of course, through the hospital, Lang got the hospital built, and I got a group of women together and we organized the Hospital Auxiliary. That cut across the whole town. Most of the people involved in that were the town people who had lived there before. So I really got involved. And the library, there was a little library which was just a city library. I was of course interested in that. So the things that I did mainly had nothing to do with the mining; they were the community things, the politics--which I tried to keep nonpartisan as much as possible. And AAUW [American Association of University Women], and PEO. The church. But all those things were apart from the mining.

Chall: So this was the first time you were a sort of individual on your own.

Lee S: On my own. And not only had nobody ever heard of either Lang or me, which was nice, but nobody had ever heard of Homestake either, because the other companies in there were so much bigger. There were Anaconda and Phillips and Kerr-McGee, which were huge companies, and people hadn't really heard much of Homestake. And Phillips and Kerr-McGee, of course, were both better known in Oklahoma and Texas as oil companies, so it was a whole new thing to come into town unknown, and have to make your own way.

Educating the Children: Grants Schools

Chall: And the children?

Lee S: Well, they started to school. I've got to mention Pauline Candelaria's kindergarten, which was one of the best experiences of it all. She was a wonderful woman. Her husband, Monico Candelaria, his family had vast ranching lands in that part of New Mexico. There's a Candelaria Street in Albuquerque. She was a college graduate and had started this little nursery school or kindergarten in her home. She as a matter of policy had Indian children and Spanish-speaking children and Anglo children in her kindergarten, and it was very hard for an Anglo child to get in. Lang had registered our little one, Richard, at Pauline's months before I came to town. Lang had liked the idea, had gone by and met her and liked this idea--what we now call multicultural or diverse.

So Rich and Jeannette both went to Pauline's, where they learned a little bit of Spanish, and they had Spanish and Indian

friends. In fact, one of Rich's little friends was a little boy named Kurt Riley, and Rich kept coming home and talking about Kurt Riley and what a nice little boy he was. Then we went out to the Acoma Pueblo one day to see some dances, and there was his little friend Kurt Riley, who turned out to be an Acoma Indian. I hadn't expected--it didn't sound like an Indian name to me. But Pauline's kindergarten was very, very special.

Chall: By this time, Kim was in school?

Lee S: Yes. He went into school, and then Christine started first grade.

Chall: What happened to the schools? They must have been overcrowded.

Lee S: Oh, the schools were overwhelmed. Everything was overtaxed. But at the same time that all these people came in, of course, the men who came in were many of them highly educated. In fact, at that time, Los Alamos and Grants were supposed to have the highest percentage of college graduates of any place in the country, certainly in the state. Grants had a high percentage of trained people, many of whom had wives who were trained. So they did bring in awfully good teachers. There wasn't much space for them, but a lot of the wives of the engineers became teachers, and we did have excellent teaching. The children had very good teachers. And the schools managed to keep up pretty well. The parents, of course, were concerned, so the schools were not all that bad.

Chall: That's good. Sounds like a good start.

Lee S: I should mention one of the things that I learned: when we went there, two of the people on the school board were nearly illiterate. One was a man named Chavez, who was from San Rafael. Carlos Chavez, I think. He spoke little English; must have spoken some, and I was told was illiterate in English. He couldn't read or write English, and probably couldn't read or write in Spanish either. But he was on the school board. Another man on the school board was a local rancher named Milton Harding, who had had to drop out of school in the third or fourth grade to help his father on the ranch. Very wealthy, successful rancher, with airplanes and lots of cows and all that sort of thing, but just no schooling.

These two men, who were pretty nearly functionally illiterate, were very, very effective school board members, because they cared terribly about it. This is one of the kind of things that we came to appreciate, that there were quite a number of people that we had occasion to get acquainted with through the political work who were illiterate, but not by any means ignorant. They were very effective and very intelligent people, and some of them really very well educated, but they just weren't literate or schooled.

Chall: That was a new experience for you.

Learning What It Means to Tamper With the Ballot

Lee S: Yes, it was. Did Lang tell about my being indicted for tampering with the ballot?

Chall: I don't remember that.

Lee S: Well, maybe not. And I don't remember who all the other officials were, but we were working in a special election where hardly anybody came to vote. It was in the basement of the St. Teresa Community Center, the Catholic church community center.

Jake Abraham, who incidentally was about half Laguna Indian--these names, all these Indian names, wonderful names. [laughs] Jake and his wife Birdye were neighbors of ours and became very good friends. Jake and Birdye and I and a couple of other people were election officials. As I say, very few people came to vote.

This was a few years later, because people had begun to leave then; I guess the boom might have peaked. But there was so much turnover in the population anyway; people came and left. We started leafing through the registration book, and we found that there were hundreds of voters registered who we knew had died or moved away or were no longer there. So it occurred to us that we should help the county registrar. I don't know why we could have been so stupid--but we, with the best intentions in the world, we removed these voter registrations, and we tied them up with string and we wrote a note to the county clerk and said that these people had moved away or died, and we put them back inside the binder and locked them up in the ballot box, and sent them off at the end of the day to the county seat.

Well, of course, this is a federal offense, tampering with the voter registration. We just were so naive, we didn't realize that we were committing a federal offense. So we all were charged with a federal offense, and we had to go to trial. We could have been sent to the penitentiary for several years. We were clearly guilty; there was absolutely no question of our guilt. I was terrified. I really, really, really was frightened, because I was guilty. There was no reason why I shouldn't have gone to the penitentiary. I did not want to.

We went down to Los Lunas to the county courthouse for this trial, and I was really terrified.

Chall: Did you have a good attorney?

Lee S: I don't recall the attorney, but we had a good judge. We happened --who knows how these things happen in New Mexico, but we did have a Republican judge, Judge Paul Larrazolo, who sat up there up above us in his black robe. I really--there is nothing like the terror that you feel looking up there at a bench and a judge just knowing that your life is in his hands. He listened very seriously to all the charges, and did not sentence us to the penitentiary. We had to spend two days down there with scotch tape putting all these things back in the books, and then the county clerk, of course, had to remove them again. But we had to replace them all, and promise never to do it again.

Chall: Of course not!

Lee S: He probably was sort of amused by the whole thing, but I was so terrified.

Chall: How many of you were involved?

Lee S: I remember Jake and Birdye and me, and I don't remember who else was involved. There must have been a fourth person; I think there were probably two and two--well, there must have been some Democrats too. Jake and Birdye were Republicans, and I was, but there must have been at least three Democrats. I don't recall who else was in on this.

Chall: But you were all--

Lee S: We were all charged, and we were all guilty. There was no question of our guilt. It was a terrifying experience! [laughter]

And at one point, Governor Mechem offered me an appointment on the state parole board, and I turned it down. I wasn't at all interested in going on beyond the precinct work. But afterwards, I thought, I said no without even considering it at all, I was so busy with the children and everything. I suppose if I had taken it, it would have been very interesting, and my life might have been very, very different.

Chall: It surely would have been interesting.

Lee S: But I was so busy just with children that I didn't think of continuing a public career.

I wrote book reviews for the local newspaper, books that came into the library, new books at the library. That was kind of fun. And did an awful lot of cooking and entertaining. There weren't

any restaurants in town that were any good, and Lang was forever bringing people home for dinner.

Managing the Household

Chall: I wondered about that.

Lee S: I did have reasonably good household help. Not too long after we got there, I hired Jessie Greer, who worked for us from then on the whole time we were there. Jessie was wonderful, and kept the house clean, did the washing and loved to care for Jeannette. Her husband James was wonderful with Jeannette and the other children too. His birthday was September 2, the same as Kim's, so he and Kim were good friends. They would shoot baskets together. He and Jessie often went out for lunch and took Jeannette with them. But Jessie didn't much care for cooking, and she wouldn't stay and help with the dinner in the evening, because she had James. So when we had dinners and entertained, I really did it pretty much on my own, and it was a lot of hard work.

Chall: Did you bring somebody in to help with the dishes, or anything like that?

Lee S: No, there wasn't anybody. There just--or I was too busy to find someone, I guess. So the children helped, and we had a dishwasher, and things just somehow got done. I didn't entertain very elegantly, but I did learn how to cook for twenty and thirty people.

Chall: Oh, you mean that you would often have that many people come in--?

Lee S: Yes, we had big bunches of people. Jessie would help during the day, but she didn't want to stay in the evenings.

Chall: Were these people from Homestake, or from the other partnerships?

Lee S: Anything and everything. Hospital people and Homestake, and visiting dignitaries. Just all sorts of things. I really ran sort of a boarding house for a long time. But I enjoyed it.

Developing Friendship Among the Indian Communities: Potter Lucy Lewis

Lee S: We got quite well acquainted with Lucy Lewis out at Acoma. She was a potter, and it turned out that she became--well, when she died, her obituary was in the *New York Times* a few years ago. She was one of the nation's finest Indian potters. We liked her pottery, and knew that she was considered the best of the Acoma potters. I didn't fully appreciate how significant her pottery was. When she would come into town with her daughters, frequently they stopped by the house to use our bathroom, and have a drink of water. Several times Lucy and her daughters came by. We would stop and see her when we went to Acoma.

Kim's birthday was September 2, which was St. Stephen's Day, and St. Stephen was the patron saint of the Acoma Pueblo. We were always invited out there to their dances on St. Stephen's Day and for Kim's birthday; we would usually go out there to the dances. Lucy Lewis gave him several little pottery pieces that she had made.

Chall: Do you have her pieces?

Lee S: I have a number of her pieces, yes. As I say, at the time, I didn't fully appreciate what a great woman she was. That was a pleasure.

Mary Wang, whose husband was Basil Wang, the doctor out at Anaconda, became a very dear friend. She was a dancer who had worked with Ruth St. Denis. She taught dancing to our little girls. When Ruth St. Denis came to town to visit, we got to meet her. That was a lot of fun.

The Anaconda Company had their facilities out at the mill site, although the Wangs moved into town soon after we came there. But Mary had her dance classes out at Anaconda in a big quonset hut. When Ruth St. Denis came, Miss Ruth as Mary called her, she taught the class that afternoon, and I went out and took all the children, because I thought they ought to meet this great woman and observe her teaching this master class in dancing.

I asked Lang if he wanted to stop by on his way from work, so he came by, and--[laughs] he was in his work clothes, khakis and a plaid shirt. She had us all, mothers and children and everybody, sitting on the floor in the lotus position, and doing these lotus-like things with our hands. She did a lot of Oriental-type dancing.

But anyway, Lang came in and was watching us. She saw him and she said, "You! Come over here and sit down." She got him in, too. [laughing] I'll never forget how awkward he looked, he was so flustered at having Ruth St. Denis tell him how to make a lotus with his hands. It was funny. But it was quite an experience.

Chall: I should say. One would never expect to have that in Grants.

Lee S: No. It was fun.

And we loved the Indian experience. We went to the dances and we went to Shalako out at Zuni every year, which was an all-night dance in the fall, late November. Oh, it was cold. This was when these huge masked figures came in to town representing the gods. They came at sundown, and they danced all night. We would go down there and Indian friends would invite us to sit in their homes and watch the dancers all night. The dancers went from house to house, a powerful, wonderful experience. We just loved that. And we went out to Hopi, although we didn't know anybody at Hopi, but we did go and visit the Hopi dances several times.

There were some friends named Peña who also were Republicans, and had a sheep ranch way out in the country, and they invited us up for sheep-shearing time. The shearers worked in four languages: Basque, Navajo, Spanish, and a little English. We got those experiences. And the Lees in San Mateo had a huge ranch, and we used to go out to their ranch. We had a lot of extra benefits.

Chall: Great experiences, I would think; wonderful for the children. They were just at the right age to enjoy them.

Lee S: A lot of very good experiences. Piano teaching there wasn't awfully good at first, but they did take piano lessons. Kim became a very good piano player. Well, Viola Peña, after she came to town, she was a good piano teacher, and another was Kathy Swanquist. But Rich wanted to learn to play the violin, and Viola Peña introduced me to a nun at San Fidel, which is down the highway a ways, and I drove Rich down there for lessons with her. She was very good. It involved a great deal of driving around to get to all of these places, and to Albuquerque for the orthodontist. That was eighty miles. So I was spending an awful lot of time on the highway.

One more little thing about Acoma--

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Lee S: I understand that now, I think, you can even drive up to the town at the Indian pueblo, but in those days you couldn't. In fact, you

couldn't always even go there. There were times when it was not open to any visitors, but somehow we would find out when you could go.

At the base of the rock, there was a spring and a little pond, and then there was a very steep trail that went up the side of the rock there. This is the pueblo that Willa Cather wrote about in *Death Comes for the Archbishop*. When you were walking up this trail, very steep with steps cut into this cliff, and when you would put up your hand to balance yourself on this rock wall, you would find that there was a big indentation for your fingers, a real hand hold that had been kind of carved in there--

Chall: By many hands?

Lee S: By hands through--well, since 1200. This is the oldest pueblo in the country. So it was quite a thrill to put your hand out and realize that thousands and thousands of other hands had grabbed that rock at that particular spot. It was a wonderful mind-expanding experience to do that.

Once, I was going up to Santa Fe, driving a group of Republican women, and one was Virginia Ealy, who had recently come from Ohio, and one was Mary Gottlieb, who was an Acoma Indian. I don't remember who the others were, but as we were driving down the highway, Virginia was new there, and she somehow started prattling about her distinguished forebears including people who had--she was a DAR [Daughters of the American Revolution], and she had this wonderful lineage going back nearly 200 years. [laughs] I kept waiting for Mary Gottlieb to say something as we drove by--we were going by the turnoff that went to Acoma, where her family had lived for 800 years. She never said a word. She never, ever, ever spoke up and said, "My people have been here for hundreds of years," maybe thousands, who knows.

Chall: Wouldn't happen today.

Lee S: No. But I remember that I was so embarrassed, and I kept thinking, "Surely Virginia is going to realize how silly this sounds." [laughter] But from Ohio, of course, she didn't. She was new there. But anyway, those things were interesting. You got a very different perspective in Grants.

Chall: Did many of the Indians, Acoma and others from other reservations, live off the reservation and in the town?

Lee S: Oh, yes. A lot of them did. The Gottliebs actually lived in San Fidel, I think. But they kept a home up at Acoma. Two of the big Indian families, the Acoma and Laguna families, were the Gottliebs

and the Gunns. We became very good friends with both. They were interrelated also. In fact, the first--I think we came to Grants on a Saturday, Friday or Saturday, and I went to church that Sunday morning, and one of the first people I met was Naomi Gottlieb. We became very, very dear friends. Naomi actually was Spanish, and she was married to Bobby Gottlieb, who was part Laguna Indian. New Mexico talks about the three cultures, and it truly is a very integrated--or was at that time--a completely integrated society. It was just wonderful.

Chall: That's Indian, Spanish, and Anglo?

Lee S: Yes. And of course, a lot of intermarriage. And Grants was a very integrated community. Jessie, the woman who worked for me most of the time we were there, was what we now call African-American. She had come in from Texas, and she was wonderful. She meant a lot in our lives. So it was a good society. There were not too many frictions there.

I do have to mention Mr. and Mrs. Dodd, who lived just a few doors from us. Well, we moved several times, but they lived near us at first. They had a granddaughter who was a little older than Jeannette, and she had been born with a heart defect. In those days, they didn't operate for several years, so they were saving money for Susan's heart surgery. So Lottie Dodd wanted to babysit to build up this fund for Susan's surgery.

So she became our surrogate grandmother. She just was wonderful. In fact, the children couldn't wait for us to go out so they could have Mrs. Dodd take care of them. Often I would take them to her house, and then I'd come to pick them up and they'd cry and not want to go home! [laughs] She was just wonderful. We were so fortunate in that kind of thing. Both Jessie and Lottie Dodd were wonderful care givers for our children.

Experience with Mental Illness in a Boom Town

Lee S: But one kind of dramatic thing that I came up against there was mental illness. It was a town where there were a lot of instabilities among the people. A boom town attracts people. There were a lot of people who had left behind some sort of problem where they lived before, and came there to get away from it. A lot of newly married people who had been divorced and remarried. And there was a lot of drinking and a lot of quick money. I suppose it was an emotionally unstable population in a sense, probably a lot of people with problems.

But anyway, a couple of times this mattered very much to me personally. There was one woman whose husband worked for Homestake, and I never actually met her, but she was on medication for some sort of serious mental illness. I don't know what it was exactly. But she would only get medication for a month at a time. If it was a thirty-one day month, it ran out. She would call me, for some reason, telephone me. It was quite frightening. Fortunately, our doctors were close friends, so I could call on them and ask--about the second or third time this happened, I got quite frightened.

Chall: Did she threaten you, or was she just rambling?

Lee S: She thought that other people were trying to hurt her, and she wanted to be protected from these other people. She thought that since her husband worked for my husband, it was my job to protect her. It got very complicated. As I say, I never really got to know her, but this was pretty upsetting.

Then there was a very bad episode with one of the Homestake staff people. Lang did not promote her husband to the job that she thought he should have. She and I had been very good friends, and our children were friends. She was going through menopause, and she really lost her bearings completely. She threatened to kill me and the children. Fortunately, she was a neighbor of one of the doctors whom we knew well. Then the doctor she was actually seeing had been our doctor, and his nurse was a close friend. So among all of them, they urged me to just be terribly careful and sit tight, because they didn't want to commit her. Nobody wanted to commit her if we didn't really have to. But for a while, it might have been quite dangerous. Eventually--well, we left town then, and eventually she became all right again, and now we're friends again. But there was quite a long time when I was locking my doors when I was in the house, and was keeping the children very closely watched, because she had threatened to kill them and/or me. So that was frightening.

Chall: I should say. I think Lang mentioned that.

Lee S: He probably did. That happened the last year we were there.

Chall: When you were leaving, you left very quietly, just packed and left sort of early in the evening or late--sometime when nobody was really going to be paying much attention, so that you didn't have grand farewells or anything like that, to protect yourself.

Lee S: Not at all, no. We tried to just sneak out of town. The last people that we saw in Grants, the ones who came up to see us and

stood in our driveway and waved us off, were the Gundersons. They came up and said goodbye to us.

But the one I couldn't fool--I thought that we were surprising everybody, and when I announced to Jessie that we were leaving, she said, "Well, I knew we were moving--" we [laughter]. She thought we were just moving from one house to another, but she said, "I knew we were moving because you had me clean all the medicine chests." [laughter] That's the only time I asked her to clean all the medicine chests was when we moved!

Chall: [laughing] Oh, that's great. She had no idea that Lang's position had changed or anything?

Lee S: I guess she didn't know we were leaving town, but she knew we were moving.

Chall: She must have been devastated.

Some Social Discomforts

Lee S: We chose not to join the country club, partly because we just didn't have time and we weren't interested in golf. I guess we felt that if we were going to be a role model, we would be it in some other way. I don't know whether anybody paid any attention to it or not. But I did drop out of the mining engineers wives auxiliary, the WAAIME group, because it became so terribly uncomfortable for me, the hierarchy of it all and the pressures that I thought were put on some of the younger women. So I dropped out.

Chall: What did you call this group?

Lee S: WAAIME. Woman's Auxiliary to the American Institute of Mining Engineers. There was a committee each month, and we put on luncheons for eighty and 100 women. Anaconda donated this big recreation facility of theirs for our luncheons. Most of us, when it was our turn--there would be a committee of five or six women--we would go out there and set up tables and decorate them. We made the food--Jello salads and casseroles. But it was rather expensive. It would come--each one of us had to spend--oh, in those days, as I recall, I think it was $30 or $35 each for us to put on our share of these lunches. The committee would pay for it.

But then there were some who, when it was their turn on the committee, would take us to the country club and everybody would

pay for their own lunch. So these more wealthy women who belonged to the country club got by free, and the rest of the women who didn't belong to the country club had to spend really quite a lot of money for these lunches. I didn't like that. I felt that the women, if they chose to have the lunch at the country club, should pay for it the way the rest of us did. It rankled me and bothered me to the point where I finally just dropped out.

Chall: Did you make a complaint to someone?

Lee S: No, I never did. The last time that I went, we went to the country club and we not only all paid for our own lunch, but they voted to pay for the flowers out of the treasury, and that upset me. I thought the hostesses should have at least paid for the flowers! [laughter] I thought, "Well, this is the end. I'm not going to do this any longer."

We also played an awful lot of bridge. There were bridge parties, luncheons for forty and fifty or more women with elaborate prizes. We had an awful lot of fun, a lot of parties and a lot of fun, and wonderful friendships. It was a good time.

Lang's Hardworking Schedule

Chall: What about Lang's work and schedule? From what I gathered, it was just nonstop, and it was so full of stresses.

Lee S: I ran into some of his calendars the other day, his little desk calendars, where he had marked his hours, and it would be--it totaled usually eighteen hours a day. He separated it by the partnerships that he was working with, and allocated his hours. He just had kind of noted on these little calendars, and it would add up to sixteen and eighteen hours every day.

Chall: I thought it must have.

Lee S: Seven days a week, most of the time.

Chall: Seven days a week. How did you manage to have a household?

Lee S: With difficulty. We got up awfully early, and I packed a bucket for him--all the wrong kinds of food, we now know. A hard-boiled egg every day.

Chall: Probably needed all that energy anyway.

Lee S: He was leaving at six usually in the morning for work, and coming home at seven or eight o'clock in the evening, and often bringing somebody--not always--and then doing work at home or having meetings in the evening, and Saturday, of course, and frequently Sunday, although he was good about taking a little time on Sunday. We had a little family time. He did all that he could with the children; he really was trying to be a wonderful father. He did manage to get to things like recitals and really important things; he would do his best. And he found some time for Scouting with the boys. That was after a few years, of course.

We did quite a little camping as soon as Jeannette was toilet trained. We didn't have tents; we just put our sleeping bags on the ground, which you could do in those days. We went to the Rockies and out to the Four Corners-Monument Valley country, to Glen Canyon and Rainbow Bridge. It was all beautiful country for camping, and for family time together.

But those first years, we really didn't see a lot of Lang. It was terrible. He was just on call all the time. When the water pump would break at two in the morning.

The water situation was very, very bad at first. I remember when Jeannette was tiny and I'd get up for her two a.m. feeding, if there was any water in the pipes, I would do a load of washing then, because there wasn't water during the day, but there sometimes was at two in the morning. It was not easy. And trying to plan a house, moving and those things, it was hard. But we sort of allocated the jobs. I did the house and the children, and he did the other things. Somehow we managed. But it was hard.

But all the other women were going through the same thing, and all the other men were working just as hard. It was exciting. We wanted the hospital, and so all those things were important.

And one thing that people now do not seem to remember, is what high hopes we had then for nuclear power generation. I felt very strongly about this because in Tayoltita where we had only 15 amps of power, I learned to appreciate how much richer life is with plentiful electric power. And I saw how the life of the entire town was transformed when the company expanded its power facilities and made power available for the corn mill, so the women for the first time didn't have to grind corn by hand all day, but could take it to the mill and have it ground in ten minutes and for a few centavos. This freed them to sew and play and enjoy life in a whole new way. I thought of what it would mean in the underdeveloped countries to have plentiful cheap power for pumping water and grinding grain and to have electric lights to read by.

We felt very emotional about producing uranium to advance world civilization in a major way. We do not remember these feelings now but we felt that way then. So we did not mind the long hours that the men worked or putting up with all the inconveniences of housing and so on. We were working for a grand cause.

Chall: Aside from the working, the long hours of work and keeping these various partnerships together, Lang was often having difficulties with some of the other men--right now I don't remember whether they were with Homestake or with one of the other partnerships--and sometimes in his relationships with headquarters, he would be undercut. I just wondered whether he brought that kind of stress home with him.

Separating Personal and Business Life

Lee S: He really didn't. For one thing, we hardly had time to talk about those kinds of things, and he never did talk about those kinds of things with me. He wasn't an awfully talkative person anyway, and I think he felt that it was--I don't know whether he felt just like sheltering me from it or whether he felt that he was protecting me when I didn't know those things because it might have affected my relationships with some of the wives. But he never did--sometimes years later, I would find out that he had been having trouble getting along with someone, or that there were problems, but it didn't--with the exception of this one mentally ill woman that caused us the trouble. But no, I was never really much aware of those things.

One thing that rankled me, and then later I realized how it was wise of him, that I didn't ever meet a lot of these high rollers that were connected with some of these other partnerships. There were people from Santa Fe and Albuquerque, big wheeler-dealer operator types. I would hear about them, and some of the other wives were getting in on all this marvelous social--what I thought sounded like wonderful social life that they would get in on, and be going to country clubs and resorts with these people. I felt left out that I wasn't getting to meet them. Of course, I was busy with babies, and these other wives weren't. But I felt kind of resentful at times that I wasn't getting in on all of that.

But then later I realized that he didn't want to be on a personal basis with these people, that he just felt it was better to keep his business dealings with them completely separate, and he didn't want to be socially beholden to them or indebted to them or

involved with them at all. So I never got to meet all those people.

Chall: I see. Well, when you read his oral history, you'll understand a lot of what he was going through and thinking.

Lee S: Right. I think he protected me from all that. As a matter of policy, probably just didn't want to be personal.

Chall: He was very shrewd, I thought, in his dealings. He thought through things.

Lee S: But there were times when I heard about all these wonderful social goings-on, and I felt left out.

Chall: And you were having dinners for sixteen, twenty people at a time, and not getting any of the big rewards.

Lee S: Well, we weren't entertaining those--these were not the--

Chall: No, they weren't the same people, of course.

Lee S: No. We were entertaining mostly local people, and sometimes Homestake people that came. But he pretty much kept his business separate from his home. I think maybe he needed to do that. And he never gossiped; he absolutely would not gossip with me, and wouldn't listen to gossip. I didn't ever dare--I couldn't prattle to him about that day's bridge party, because he wasn't interested, he wouldn't listen. He was not a gossip. Some men are; some men love gossip, but he didn't at all.

Chall: He was a straight arrow in every way.

Lee S: [laughs] He really was. In fact--well, this is kind of funny. I remember I had heard about Louise Rappaport. I never met her. I knew I would like her, from things I heard about her. I knew that Rusty Rappaport was involved in mining, and I knew that I would like Louise from things I'd heard.

One day, I just happened to call her on the telephone. We shared a cleaning lady; we had the same cleaning woman for a little while. This was when I was still trying to get my arrangements made for help. I called her one day, and we talked quite a long time. I said, "You know, I really would like to meet you. I hope one of these days we can get to meet." We had a nice long conversation, and I just thought I would like her. Now we're good friends, of course.

But anyway, I chatted on quite a while with her, and that night, Lang came home and said that Rusty had just completed a deal that day with somebody, I don't think it was Homestake; maybe it was. But anyway, he'd made several million dollars that day, Rusty had. I was kind of embarrassed, and again a little bit miffed with Lang for not clueing me in a little bit more, because I thought Louise might have thought that the reason I called her to try to get so friendly that day was because I had just heard that her husband had made three million dollars. And I hadn't known a thing about it. But anyway, we later did become friends.

Chall: Who were the Rappaports?

Lee S: He was a geologist and mining entrepreneur that had invested on his own in mining claims around there, and had sold some that day to somebody and made a bundle of money. [laughs] He did very well by himself, I think, but a very unpretentious man, lovely man. But that time I wished Lang had kept me a little better informed.

That reminds me of a little anecdote which I don't suppose Lang mentioned. I met Rusty in May of 1957 when I went to Grants to see what it was like before we moved there. I know that we ate dinner at the Cactus Cafe, and it was really a wild place, filled with lots of men, geologists, speculators, dealers of all kinds. Rusty Rappaport was there with Henry Birdseye, whom I had met long before when he was at Harvard or MIT. It may have been that same evening when we were standing on the sidewalk talking with some people and a little Spanish-American boy, maybe ten years old, came by selling newspapers. We turned him down, and he just grinned at one of the men and said, "If you buy my paper, I'll tell my dad to vote for you." It turned out that this man was running for a seat on a local water district board or something of the sort, in an election that was coming up soon. I was absolutely amazed that this little boy had such a keen political sense. I think that most of the Spanish people there had a political awareness that was very different from what you get taking political science in college.

More About the School System

Lee S: The school board--there were problems with the schools, and I'm sure Lang spoke some about this, but I did work for a while on an advisory board for the school board; a group of citizens were asked to evaluate and assess the schools and find out what was wrong. The main problem was that the school board was very, very political, and probably is in many places. But there were a couple of concessions that the school board could give that were very

lucrative. One was the bread, selling the bread to the school lunch rooms. The other was the earth moving equipment, or the equipment that maintained the roads and hauled gravel to the driveways of the schools.

It was a huge school district, covered hundreds of square miles. The bread and the gravel-road-cleaning concessions, whatever you called them, were very, very critical. The school superintendent, of course, could decide pretty much who got these, along with the school board. So those things always went to relatives and good friends. And a lot of the janitor jobs went to friends and relations, and of course hiring, although that wasn't much of a problem because they could hire everybody that came along for teaching. But the janitor jobs were plum jobs.

A lot of us had been upset about some of the things that were going on, not so much the teaching as the other things. This advisory committee tried to get into some of those problems. The superintendent was a very cagey fellow named Manuel McBride. He was a good politician, and he I think tried to co-opt us by naming this committee of people that he knew didn't much like him. And not very much came of it. We poked around and tried to expose some things, and were not able to find anything that we could actually prove or demonstrate was wrong.

Chall: You were concerned with sort of corruption, is that it?

Lee S: Yes.

Chall: And the use of money.

Lee S: Yes. But it never really came to anything. We spent a lot of time, and--

Chall: No investigative reporting there.

Lee S: Not much came out of it, no. But we tried; we were very much involved with trying to keep the city and the schools running well.

Chall: Yes. It was your city.

Regrets About the Church Situation in Grants

Lee S: One thing that I always regretted was that we were unable to take advantage of the opportunity to have a community church there. When we arrived in 1957, the only strong churches were the Catholic

and Presbyterian, which was actually a merged Presbyterian-Congregational church. This derived from an arrangement that had been made long years ago which apportioned the Indian missions among the mainline churches: the Sioux areas in South Dakota had Episcopal missions, and the Pueblo areas were Presbyterian. So I thought with the population booming in Grants, we should just build on the existing Presbyterian church. I did write a letter to the Piedmont Community Church, asking for help in organizing a community church, but they were in the process of changing ministers and my letter was never answered. And then all the churches came in with missions and efforts to create their own turf--Methodist, Lutheran, Baptist, Mormon, Church of God, and so on. There was a small Episcopal congregation that had started out by Anaconda; the pillar there was Ralph Card, a banker and carrot grower.

I felt some loyalty to the Methodist Church, which I had grown up in, so after some soul searching I decided to stick with them, and we did work very hard to build a church. I was Sunday School superintendent and taught the adult Sunday School class, and Lang was on the board for a while. We made close friends through that. There was a young minister, Glenneth Harrington, who was a good role model for the boys. The women had lots of activities, including a weekly worship and prayer group, which meant a lot to me. It was all gratifying activity but I was sorry that the community was split into so many denominations.

XVI PIEDMONT, CALIFORNIA, 1966 TO THE PRESENT

Contrasting Piedmont with Former Home Communities

Chall: I was wondering now, you've covered Grants pretty well, if you'd like to move on to your big move.

Lee S: Homestake was trying for some time to get Lang to come out here. We sort of dragged our heels because we liked Grants so much, and I guess were too busy to think of moving. But it got to the point where he was spending more and more time out here, or in other places traveling, and I was alone in Grants--not alone but with the children. Eventually we just really--it was time to move, and as we mentioned, because of this woman with the mental illness, our departure was not very much fun. It was really pretty painful. We couldn't do it openly.

Chall: That is too bad.

Lee S: It was very complicated trying to do it quietly. But anyway, we left. I was sad to leave Grants in a lot of ways. We loved it there.

Coming to Piedmont, it was different. It was very different.

Chall: A whole other community--totally different.

Lee S: It was quite different. I was a little irked by the smugness of the local people who assumed that we were thrilled to death to move to Piedmont, because I had loved Grants in so many ways, and the quality of life there for us was in many ways quite good. Things like meeting Ruth St. Denis, and there were things there that were every bit as cultural as what we found here. The house here is a little bigger, but we were well housed there. The schools here, of course, are probably better.

I guess one of the first things that I realized here that I enjoyed was that I had so much more choice of friendship. For the first time ever in my life, I didn't have to be humble about the fact that I'd gone to college, and this was something I had never really thought about before. But every place I'd lived, I'd had to keep it very much in the background that college had been an important part of my life. And here, everybody's gone to college. When you meet someone, you just never question the fact that they've gone to college. This was a completely new experience for me, and it took me quite a while to get used to that.

It took me quite a while to get used to being able to--I still can't comfortably talk about social engagements with people who weren't there. For instance, I could say to you, "I had dinner with friends last night," and you wouldn't get miffed because you hadn't been there, too. In a little town, you don't do these things, you never mention anything that the person you're talking to wasn't involved in. And this was a whole new thing, but everybody here had busy social lives and didn't expect to be in everything you were. It was quite different.

Chall: How did you make friends?

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Lee S: I didn't mention AFS [American Field Service] in Grants. I had been on the AFS committee. Our children were young and weren't involved in it, but I was on the board. In those days the AFS students at the end of the year toured the country, and we had large groups of high school age students who came through Grants, particularly from L.A. They all wanted to some to see Indians. So every year we housed as many AFS students as we could, usually three or four that we would put up for about a week. We enjoyed that. We met a lot of wonderful youngsters from all over the world, Japan and Germany and Turkey and Switzerland--just everywhere.

I remember, for years we said a little table grace at meals about people across the sea. It had a little phrase in it about "bless all those across the sea." And the first time that we had the AFS students, Jeannette was still little. She was so excited at the fact that this girl whom she'd become so fond of was from across the sea, and she said, "That's what I've been saying my prayers about!" It dawned on her that there really were people across the sea.

So when we moved here, I did get into AFS right away. We were planning something one day, and somebody said something about going to the store and buying a potato salad, and I said, "What?!" It

was so funny, because none of these other women knew that you could make potato salad; they had always all bought potato salad, and I had never heard of buying potato salad before. I was really very naive about the kinds of services that are available in the city. But AFS was one of those things I got into, and really enjoyed that.

Chall: Did you ultimately have exchange students living in your house?

Lee S: We never had one for the whole year, no. Just for these occasional visits.

Chall: And your children didn't go abroad?

Lee S: They never did, no. Not as AFS students. This is a misunderstanding. I thought they didn't want to, and one of them told me not long ago that she wanted to and thought that she shouldn't--I guess when I was on the board they couldn't, but I could have dropped off the board when I wanted to. But anyway, we did have the Peruvian boy stay with us after we moved here. We didn't have any Latin Americans while we were in Grants; that didn't seem--well, we didn't have time or energy, but also it might not have been appropriate to have foreign students there at that point.

We had the boy from Peru, Oscar Ballon, who stayed with us, and then we had Beatriz Zapata from Colombia who stayed with us for three years. I don't know if Lang mentioned her.

Chall: Stayed here, in this house?

Lee S: Yes. When we moved here, I had thought that I really would like to try doing something a little more substantive than the kinds of things I had done in Grants. Lang and I decided early on that we no longer wanted to play bridge. We played a few times after we moved here, and decided we didn't want--he never was very fond of bridge, and I enjoyed it, but we both decided that we wanted to do other things here.

Lee Begins Her Career as a Teacher of English as a Second Language with Oakland Adult School

Lee S: And so I read in the newspaper about this Neighborhood Centers program for adult education, and I thought since I had learned Spanish that that could be an interesting thing to try. I intended to offer as a volunteer--I did offer as a volunteer. I saw it in

the *Oakland Tribune*, and I went down to the office and talked to the director of the neighborhood centers, who was an awfully nice black man named Edward Shands. I talked with him and asked if I could volunteer in the Neighborhood Centers program with Spanish-speaking adults. He chatted with me a bit and he said, with my qualifications, that he wanted me to teach, be a teacher. I had not ever been a teacher.

But he convinced me. They needed teachers very badly at that point, and he convinced me that I should be a teacher of English as a second language, that they didn't need helpers, aides, but what they needed were teachers. He said that he could get me a credential. So I thought, well, okay.

So it just sort of happened. Now people are just doing anything to get in as ESL teachers, it's so hard, but he got me a credential. I didn't have to make any effort for that except go out to Hayward to Winton Avenue and get it. In those days, Winton Avenue was the center of everything. The county has really dropped out of the picture now, but at that point you heard a lot of discussion of Winton Avenue around the schools, because the county really controlled the school program.[1]

Chall: The county school system?

Lee S: Yes. And now I don't think anyone ever mentions Winton Avenue. But I got a lifetime credential in adult education. All I had to do was pass the test of the Constitution. I had to go out to--Merritt College at that point was out on what was Grove Street. It's now Martin Luther King Way, and Merritt College isn't there any more. But I took a test and passed it on the Constitution, and I went out to Winton Avenue and talked to somebody, and signed some papers, and got a life credential just like that.

Then immediately I was asked to start teaching at Oakland Technical High School in the evening, two evenings a week. I had a class with illiterate Portuguese and Italians and some Chinese, mostly Europeans, and mostly illiterate. They worked as garbage men during the day. There were some Greeks. I was told that at the end of the year, there would be a big party, and that the refreshments and the decorations and everything would be brought in by the local Jewish group, who would bring little flags and cupcakes, and have a big party for the people who finished the year with this English class. And that was the day of the Six Day War--Seven Day? How many days was it?

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[1]Headquarters of the Alameda County School District.

Chall: Seven, I think.

Lee S: Seven Day War, 1967. I went down there, and of course, the Jewish group had forgotten all about bringing cupcakes! [laughter] It was quite a crisis for me; I didn't know how to handle this. I'll never forget the day of that war, because it impinged very directly on me. I had all these students warned that we'd have this wonderful party, and then I had to run out and--

Chall: Buy some cupcakes.

Lee S: But at any rate, I mention this because the composition of these classes has changed so completely since then. They're almost all Asians now, or Russians. And ESL teaching has become--I think you have to get a special credential now, and it's very, very difficult to get a job teaching ESL now.

But I started. I taught at Oakland Tech for one semester, but after I'd taught there for about a week, they called me to substitute down in Chinatown in the morning, and I substituted a couple of days, and then they offered me a job teaching there. So starting in January, I was teaching in the evening at Oakland Tech two nights a week, and five mornings a week in Chinatown.

Chall: Oh, you had a full-time job.

Lee S: Oh, it was much too much. We had just moved into this house. I guess that's one excuse I have for never having really settled into this house, I've still got boxes in the basement I never unpacked, because I never got around to it. But I kind of bit off more at first than I might have. But I loved it. Then I dropped the evening classes at the end of the first semester, but I continued--taught in the mornings in Chinatown for nearly twenty years. I loved it. I just loved it. Somewhere along the way I stopped for a year to see if I wanted to do other things, and I missed it, so I went back to it. And then when I wanted to go back, I couldn't get back in Chinatown right away, and I taught for a year out in East Oakland, and then got back into Chinatown where I really enjoyed it.

Chall: Who were the people that you were teaching in East Oakland?

Lee S: In East Oakland, they were Latin Americans, a lot of Latin Americans. And some Italians, and Chinese also. Koreans. We had Japanese war brides, Korean war brides--more war brides, I guess, out in East Oakland, and then Latin Americans mostly. In Chinatown, we had a lot of Europeans and Latins at first. Then as the years went on, it became more Asian. A lot changes there. Of course, then we got the Vietnamese refugees later on.

Chall: Sounds satisfying.

Lee S: Oh, it was a wonderful, wonderful career for all of us. All, I say, because it enriched our whole family experience. I would bring these people and their experiences home, and the family became very much involved in it, too.

The Children and Their Education

Chall: Your children, were they all in school?

Lee S: Yes, I hadn't said that the children did go away to school and camp when we lived in Grants. A lot of people there had horses, and the children of course wanted horses too. I knew that I could never manage that; it meant boarding them on a ranch near town, and a lot of extra work. So we bargained with the children that they could go to Orme Ranch camp in Mayer, Arizona, every summer and ride all they wanted then. They all went to Orme summer camp and loved that.

Then when high school time came, Kim had gone away first to Orme School in Arizona and then transferred to Moses Brown in Providence, where Lang had gone. Then Tina had gone to Lincoln School, which was the girl's school affiliated with Moses Brown. Kim graduated in 1966. He was young and immature. He'd been accepted at Haverford College, but he didn't want to go yet. Tina had one more year at Lincoln and she didn't want to change schools, so she stayed at Lincoln that last year, and then went to Stanford.

Kim took a year off and was going to work in Mexico, and he did go down to Tayoltita and worked for a while as a surveyor's helper. Then the man he was working for had a death in his family and quit, so Kim came back here then and he was taking classes at Merritt, just to kind of finish out the year. That was a pretty disastrous year for him, looking back on it now. We didn't know many people, and I had taken on this teaching job which may have been a mistake, because I was so busy with that that I wasn't supervising him, although at that age, you can't supervise them anyway. But he did get in with the kids that were hanging around the park, and I think perhaps started with pot smoking and a bad group of youngsters. There were some Piedmont kids that were just loafing down in the park that he spent too much time with. That probably was a bad thing to have done.

Rich started in ninth grade here. He wasn't happy here. For one thing, they wouldn't give him credit for some of the things

that he'd had in Grants. He felt very bad. He had been very much involved in the National Honor Society in Grants, and they wouldn't accept that membership here. They had a chapter of the National Honor Society here, but they wouldn't let him join. He felt very bad about that. But he was active in Scouts, and Lang worked with that. Rich never felt quite at home here. He wanted to go away to boarding school, so he went to Moses Brown too, although we hadn't expected him to have to go away, but he wanted to.

Jeannette came into fifth grade here, and she did pretty well. She liked--seemed to make friends a little more easily. Although a lot of her friends were little girls whose parents were divorced and Daddy has daughter on the weekend, and he wants to do something with her, and has to invite another friend along. So Jeannette got involved with a lot of very exotic weekend things with little girls who were spending the weekend with their father. Jeannette, of course, was available, because we didn't have much in place yet.

That got to be a little bit of a problem. She was spending her weekends at the places like the Claremont and Trader Vic's and bringing home all these ideas; her daddy wasn't entertaining her in the style that these little girls were being entertained. We had to kind of rein in a little bit of that activity. But gradually, she got acquainted with other people. But right at first, she was taken up by a lot of these little girls who were looking for companions, naturally. It was pretty heavy.

Chall: Yes. That's a whole new experience.

Lee S: Yes, it was. It really was.

Chall: For you as well.

Lee S: Yes. But the children, they all settled in pretty well. Of course, I knew a few people here already.

Chall: Lang's parents. His father was still living?

Lee S: His father was still alive, and that was a real pleasure. He lived just around the corner, so we did spend quite a little time with him.

Chall: That was nice for the children, too.

Lee S: Yes.

Chall: And for him, I'm sure.

Lee S: For all of us, that was just a wonderful time. He lived almost two years after we moved here. It was a very busy time.

But then when Tina was at Stanford, that was kind of a hectic time. She entered in '68, and '69 and '70 weren't very good years at Stanford, you remember. There was a lot of commotion and burning and bombing. It was a fearful time. We were very concerned about what was going on over there.

Chall: But she came through it all?

Lee S: She came through fine. But it was worrisome. We really worried about their safety sometimes. Let alone the ideas they were getting. [laughs] Those were terrible years for parents, the whole Vietnam thing was so awful.

Chall: You had Jeannette here at home, then?

Lee S: Yes, she didn't go away to boarding school, although she wanted to, but she enjoyed the music program here so much that finally she decided to stay here. And Kim came back after a few years, too. He went to Haverford, and he worked back there after he dropped out of school, but then he came back here, and eventually finished college at Hayward [State University]. He graduated in '74, and Jeannette graduated from high school here the same year, and so by then, things were settling down. But those were turbulent years.

Chall: Indeed they were.

Lee S: They really were. Berkeley and Oakland were in ferment. We were all aware of it. And BART [Bay Area Rapid Transit District] was building. In Chinatown, BART was being built under the streets there, so we had jackhammers going and traffic interrupted.

And then in 1965, the civil rights law and then the immigration laws changed, so that's why the huge influx of Asians in those years, in the late sixties. There was a big influx of Asians. Their housing patterns changed. They no longer had to live in Chinatown, so they were spreading out all over the Bay Area.

Opportunity to Travel with Lang

Chall: Now again, Lang's schedule over the years just seemed like an overwhelming one.

Lee S: Well, he began doing so much more traveling, just a lot more traveling.

Beatriz was staying down the street with somebody, had a student visa, and she wasn't happy. One day on the bus she was talking to some other South American girl that she picked up on the bus, and this girl happened to be one of my students. She found that Beatriz was living near me, and she evidently told her that Mrs. Swent was very nice, and why didn't she come and ask if she could live with me?

So this girl appeared on my doorstep one afternoon--or maybe called first, I don't remember--and she said she was staying with people down the street, but she wasn't happy, and Carmen had told her about me, could she come and live with me?

Chall: Just like that.

Lee S: Well, she came in and chatted a bit. And it was one of those things that you just do with a gut feeling. Jeannette was twelve, Rich was away in school by then. Jeannette was too big for a babysitter, too little to leave alone. And Beatriz appears on the doorstep and wants to come and live with us. I just thought--I knew nothing about her, but I thought God has sent her. I really did, I thought, "You know, this is a solution I hadn't even thought of, but it might work." So I said, "All right." She came, and she stayed for three years. Wonderful girl. She now lives over in San Mateo. In fact, I just had a phone call from her a couple of days ago. It turned out to be the most wonderful solution.

She and Jeannette got along just fine, and then I was able to travel some with Lang--quite a lot.

Chall: Yes, you did quite a bit of traveling.

Lee S: I went to Australia with him for an extended trip, and to Japan for an extended trip, and Peru. Beatriz was in her early twenties.

Chall: What was she doing here, working or going to school?

Lee S: She was here on a student visa going to Berkeley Adult School to improve her English. Nice girl, from Bogotá, came from a well-educated family there, a lovely, lovely young woman. So that worked just beautifully.

Chall: You did travel in Peru. Homestake had quite a bit going there.

Lee S: Lang was down several times, too. And Australia, Japan. So that was a real treat.

Chall: Yes, I should say.

Lee S: And the other thing about this teaching job, I taught fifteen hours a week, which was too little to get a contract, so whenever I wanted to take time off, I just said, "I'm going to be off for a while." I was paid by the hour. I felt obliged, of course, to be there; I didn't do this lightly. But I wasn't on contract, so I could take time off.

Chall: And you certainly did have some wonderful adventures. I noticed, too, that over the years, often you would take one child, sometimes two, on major trips. That must have been great for those children.

Lee S: Yes. One summer, 1963, we all flew East, rented a station wagon, and toured the East Coast from Bar Harbor down to Williamsburg. We met my parents in New Haven and all went to my father's fifty-fifth Yale class reunion. We went to college campuses--Harvard, Wellesley, Brown--and all the historic places--Plymouth Rock, the Liberty Bell, Patriot Bridge in Lexington, saw a major league baseball game in New York City, and of course toured Washington, D.C., thoroughly. We geared it all to the children's pleasure, and had a fine time.

I suppose Lang mentioned the trip to Russia between Grants and Piedmont.

Chall: Yes, he did.

Lee S: He took six weeks off, and we went with the People to People group of Kansas bankers to the Iron Curtain countries and Russia. We put our household goods in storage and the dog and cat in the kennel, and took six weeks between jobs.

Chall: Yes. He managed to work out vacations--

Lee S: We took Tina and Rich with us. We wanted to take Kim too, but he didn't want to go.

Chall: Too old.

Lee S: So he stayed in Grants and worked at the hospital, stayed with some friends and worked at the hospital while we were in Russia. Rich and Tina went with us, and Jeannette stayed with my parents.

Chall: Yes, generally I remember you would take two, sometimes just one.

Lee S: We took them to South America. Yes, we did often take them, and we did wonderful family trips together, too. In fact, when we were first here, we still tried to do some camping. We went up to

Fallen Leaf Lake and the Stanford Family camp. We never had a second home; I've never been able to manage one home, let alone two. But we did take a lot of good vacations.

Chall: That was good, considering how busy his schedule was and how much work was piled on him.

Lee S: But I think the camping trips and getting out in the woods were awfully good.

Chall: So he really knew how to relax when the time came?

Lee S: Yes. He was good at that.

Lee's Second Career: Editor at the Regional Oral History Office

Lee S: I should tell how I ended up at ROHO [Regional Oral History Office].

Chall: Yes.

Lee S: There were two groups of refugees that I started tape recording. One was the young men that swam to escape from China to Hong Kong, eighteen and twenty hours. As I became aware of that--they were so different--I got so I could spot what we called swimmers. When one of these young men with the great big biceps would come into your class, you knew he was a swimmer. We had quite a few of them, and I brought some of them home with me and had them tape record their experiences.

And then the Vietnamese began coming. Even before the fall of Vietnam, we had some Vietnam refugees in our class. I started tape recording them, and then discovered that this was called oral history.

Chall: Oh, isn't that interesting, you just did that--came onto that on your own?

Lee S: Yes, really. These stories were so fascinating. Willa Baum had taught in Chinatown at the same place I taught, years earlier, so I knew her name, and had met her. So anyway, she advised me a little bit on this oral history project that I started, and that's how we got acquainted. Eventually it led to my working for the Oral History Office. But all of those things meant a lot to me, to have

my own activities, and also something to do when Lang was gone so much of the time. But it did remove me a great deal from the mining world. I was no longer with mining wives at all, really, and out of the mining community quite a lot.

Chall: Have you stayed close to some of those mining people?

Maintaining Contacts with the Mining Community

Lee S: Oh, yes. And of course, when you live here, you get a lot of visitors from out of town, so we've had a lot of visitors.

Chall: So you still were hostess?

Lee S: Yes, and we tried to stay close to our friends, but our neighbors weren't mining people.

Chall: Well, on the whole, it's been a very interesting life, from one mining village to another, to Piedmont.

Lee S: Well, it's been wonderful. I think mining people generally--they're a little bit different, because you don't stick with it unless you enjoy it. There's no other reason to do it. And the wives who stick it out are kind of special, I guess. It does set you apart from the people that have always bought potato salad. [laughter]

Chall: Yes. They have to come out once in a while and find out how the other side is living.

Lee S: It's a little harder maybe, and it does make you terribly close to your husband, there's no doubt about it, that your family has to get very close in these places. The children, too, I think are close.

Chall: So even though, when you came here, by that time the closeness was quite well established?

Lee S: Oh, yes. And of course, then I was able to travel with him a little bit, too, which helped.

Chall: Yes. Those were interesting travels. Even though sometimes it seemed as if you were a mining wife traveling when you were in Australia. Although you went off on your own a time or two while he was conducting the mining business.

Lee S: Yes.

Chall: You did something on your own, a bus trip or some such thing as that.

Lee S: Yes, I took a coach trip from Sydney to Melbourne. I really enjoyed the trips to Australia, and Japan. And of course South America. I had dreamed of someday going once to Macchu Pichu, but never expected to see it twice. Seeing the sun rise there was one of the best experiences of my life.

And in Japan, I don't know if he mentioned that, but he was visiting smelters with Henry Colen, and Hazel Colen and I went off on our own and did some sightseeing in Matsushima. That was a special treat.

Chall: Very nice.

Lee S: And of course, I continued to go to Lead a lot, because my parents lived for so very long. My father was almost ninety when he died and my mother was ninety-five when she died, in 1991, so I continued to go to Lead until just recently.

Chall: And you had friends still there.

Lee S: Yes. So I stayed in close touch there.

Chall: That's good. And have you stayed in some kind of touch with people who are still in Grants?

Lee S: Oh, yes, definitely. I had a letter just yesterday from one of my Grants friends. I'm in touch with several people back there.

Chall: Did most of the mining people leave?

Lee S: Most of them have, not all. Our good friends Roger and Betty Madsen elected to stay there when the mining ended.[1] Most of them moved on.

Chall: So you have friends all over the world.

Lee S: Yes. And that's one thing Lang and I have--I think we've probably kept in touch maybe with more people than a lot do.

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[1]An interview with Roger Madsen is in process for the oral history of the McLaughlin Mine.

Chall: Oh, I think so.

Lee S: We made a point of that. Perhaps it is because we have so few relatives that our friends are important to us.

Chall: Yes, I realized when I was interviewing him that he kept in very close touch with people.

Lee S: Christmas cards meant a lot to him. He always wanted to send a lot of Christmas cards, and write notes on them, keep in touch with people.

Chall: Yes, he did. And he served as executor to the estate of at least one, or more people, and that shows a real bond.

Lee S: He didn't just drop people ever.

Chall: Very good.

Lee S: In fact, after he died, one of his dear Mexican friends came up here. Pepe and Alicia Perez came to San Francisco on vacation, and particularly came over and spent the day with me the day of our wedding anniversary. Pepe was from Tayoltita; now he's in Mazatlan. They came over and spent that day with me because they knew that I would feel especially lonely--and it was lovely to be with them. That touched me very much, that they did that.

Chall: Basic friendship.

Lee S: And our Mexican boys, of course, have kept in close touch with us. They've come to visit even after Lang died.

Chall: That's good. They'll be your friends forever.

Lee S: I think so.

Children and Grandchildren: No Miners Among Them

Chall: And your children, on the whole, have all done pretty well with their lives.

Lee S: Yes. Actually, Jeannette's now working up in Salt Lake for a law firm that does law work for Kennecott.

Chall: Oh, is that so?

Lee S: So she's kind of on the fringes of mining.

##

Lee S: I suppose we should just run down the list of children.

Chall: Yes.

Lee S: Kim dropped out of Haverford, and then he worked at the Haverford Mental Hospital, state hospital, as an orderly. This was during those Vietnam years. At one point he went down here in Oakland and tried to join the marines. The marine recruiter called me and said, "Do you know that your son is down here trying to join the marines and he seems awfully young, and I wanted to know whether you knew."

I thought that was so nice of him. This was in about 1968.

I said, "No, I didn't know that."

He said, "Well, I just thought you ought to know that he came down here." Kim could have joined up on his own, but this recruiter called me and told me.

Anyway, there was this kind of ambivalence. One day Kim wanted to join the marines, and the next day he wanted to be a conscientious objector or go to Canada. I think the young men just suffered horribly in those years. But at any rate, he did go to Haverford for a year--didn't quite finish the year. He refused to take his exams at the end of the year. Remember that? They didn't want to regurgitate knowledge, was the word. [laughter] Anyway, so he didn't finish the year.

Then he worked as an orderly at the mental hospital, and he and a couple of friends refused to take a patient down for shock treatments, because the patient didn't want them, so they were fired. We paid his legal bills to fight that, and eventually he was reinstated. This led to Pennsylvania legislation that a patient who did not want shock treatments could not be forced to have them.

Chall: Well, good for him and you!

Lee S: The man was a Hungarian refugee who had no family here, and Kim and these other two orderlies felt that he shouldn't have shock treatments if he didn't want them. So that was important.

Chall: I should say.

Lee S: We went to bat for him on that; we were proud of him for that.

Then he got a nursing degree, nursing credential, R.N., and worked as a nurse back there. Then he came back out here and worked as a nurse, lived at home off and on for quite a while, worked as a nurse in the area, at various convalescent hospitals, at Kaiser here in Oakland, and at Stanford, and then eventually went to Hayward and finished college and got into medical school.

First the life sciences program at Berkeley, and then into medical school, and graduated from UCSF [University of California at San Francisco] as a doctor in 1980. He did his residency at University Hospital in Charleston, South Carolina, and then went to Albuquerque, and was a physician with the Lovelace Clinic there. He was physician in charge of their Tramway Urgent Care Clinic.

He was married for ten years and had three children, Julianna, Jessica, and Dylan. Then the marriage failed, and he was under treatment for clinical depression, and in April 1990 he committed suicide. That was, of course, terribly hard on all of us, just awfully hard. The worst thing of all to go through.

Christine graduated from Stanford. She would have been class of '72, but she actually graduated in '71. Then she worked for a year, and then went to the University of Virginia Law School. This came out of that turbulent time at Stanford. There were so many students rebelling, there was a question over whether civil law or Stanford law had jurisdiction on the campus. She got on some student legal panel, I don't remember the exact term, but she was put in a position of judging students who had been arrested on the campus for bombing and that sort of thing, and the question was who had jurisdiction.

A couple of law professors advised her that she would be a good lawyer, and so she did consider it, and eventually became a very good lawyer. She graduated from the University of Virginia. She's now working in Los Angeles for a big law firm there, Jones Day, as a partner. She first had a clerkship with Judge William Gray of the Ninth District, went with Jones Day after that, left them for five years to work for the Department of Justice, and then went back to them.

Chall: And she's married, isn't she?

Lee S: She's married to Gary Byrd, a well-known architect, and has a little girl named Amy, and last February, George Langan was born. Lang had two grandchildren born after he died, one named for him, and one named for me. Gary is also an antique car buff, and the family spends a lot of their free time at car races and rallies.

They come up here twice a year for races at Sears Point and Laguna Seca. It's been interesting for us to learn about this whole culture that we knew nothing about. Maybe Lang mentioned that when Tina and Gary were married, they went to Italy for their honeymoon to celebrate a Lancia centennial, and one of Gary's cars was shipped over there for them to drive around.

Rich is the next one in line. Richard graduated from Moses Brown in 1970. Then he went to Occidental College, majored in physics, worked for a while up here in Silicon Valley, and then did his graduate work at Stanford, got a Ph.D. in electrical engineering, and worked for various companies. Now he's back at Stanford as a scientist. He's a senior research scientist attached to the Physics Department, and works as director of engineering development at the Free Electron Laser Laboratory, FEL. He does engineering on these lasers, and enjoys what he does. He's married to Catherine Crawford, a nurse manager at Stanford Hospital, and has two children, Justin and Amanda. Justin was born about the time of the Loma Prieta earthquake, and Amanda about the time of the Oakland Hills fire.

He and Catherine are both cyclists. Rich raced with the Stanford team, and was very good. If he had known about it earlier in his life, he would have done very well in major competitions. He gives time now on a Palo Alto city commission representing cyclists.

Jeannette graduated from Wellesley in 1978 as a music major in 1948, and then got a Ph.D. in music theory from Yale. She was a very talented performer, primarily on the piano but also violin. Then she found that that wasn't what she wanted to do for the rest of her life, so she became a computer expert, and worked eventually at Stanford Law School.

Her husband, Richard Cawthon, got both M.D. and Ph.D. degrees from Yale, and did post-doc research in genetics at Stanford. Then he got work at the Hughes Institute in Salt Lake, and was on the team that identified the gene that causes neurofibromatosis, NF, what is popularly called "Elephant Man disease."

Jeannette went to Stanford Law School, commuting from Salt Lake. She did an externship one term with Christine Durham, a wonderful mentor and Wellesley alumna who is a justice on the Utah Supreme Court. Jeannette did a clerkship for a year with Judge Monroe McKay, chief judge of the Tenth Circuit, and she is now working as a lawyer for Parsons, Behle, doing environmental law. And she had little Eleanor, my namesake, last year. She still plays piano with chamber groups, and sings in a church choir and a civic chorus. That brings us all up to date.

Chall: Brings us all back around. I appreciate your willingness to do an interview. It enriches Lang's oral history by bringing in the family's experiences, particularly yours in the saga of life in different mining communities.

Lee S: It's interesting to be on the other side of the tape recorder for a change! You think of all the things that you wish you'd said differently.

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Transcribed and Final Typed by Shannon Page

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